A CONSIDERATION OF SOME ASPECTS OF GENERAL EDUCATION IN THE UNIVERSITIES OF THE UNITED STATES OF AMERICA.

Aston Rowland Williams.

Submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy in the Department
of Education, University of Natal.

September, 1963.

PREFACE.

The three major fields of human knowledge are the humanities, the social sciences, and the natural sciences. An undergraduate, whose special interests lie in one of these fields, should be able to understand his own field in the context of the whole of human knowledge. This necessitates some knowledge of the other two fields. This practice is followed in American colleges, and is called in these pages 'general education'. Formal study is required of undergraduates in each of these fields, and the passing of examinations in them is a condition of graduation.

The purposes of general education are discussed in the first chapter -- for the student as undergraduate, and for the man as scholar; for the man in his profession; for the man in the community; and for the man, and the woman, during leisure hours. This analysis raises the question as to what should be the aims of university education, and this is considered briefly in the first chapter, and more fully in the last.

The first chapter concludes with an outline, which also is elaborated in the last chapter, of the widest purposes of general studies. These are, in the words of the authors of the Harvard report, to enable students 'to think effectively, to communicate thought, to make relevant judgments, and to discriminate among values'.

A 'liberal education' is defined in the last chapter as one which provides both the values of depth, which arise from specialist studies, and the values of breadth, which are to be found in general studies. Specialist studies liberate a man from ignorance and prejudice in his own field. General studies put a man on the road to freedom from ignorance and prejudice in all other fields.

In point of fact, in the earlier chapters, the terms 'liberal education', 'liberal studies', 'general education', and 'general studies' are used almost as synonyms. This is inevitable, as the many writers quoted on this subject use these terms to mean much the same thing.

The content of general education programs is traced in chapter 2. The major headings are: 2.2, Harvard College; 2.3, the Massachusetts Institute of Technology; 2.4, Yale College; and 2.5, Columbia College. In each case

the contributions to curricula of the humanities, the social sciences, the natural sciences, and 'communication' are given.

In chapter 3, however, the major headings are: 3.1, the humanities; 3.2, the social sciences; 3.3, the natural sciences; and 3.4, communication. Here, in each case, the uses made of these fields of knowledge in undergraduate curricula are compared with respect to two very different university colleges -- the College of the University of Chicago, and University College in Michigan State University. Communication in general education is such an important subject that a separate chapter (5) is devoted to it; this forms the one component of general studies which is invariably present.

Chapter 6 deals with similarities and differences in general education programs in the United States of America. In the General College of the University of Minnesota, the emphasis is as much on social objectives as on academic aims. Next, the curricula of four new colleges are sketched -- and all have strong general studies programs: Michigan State University, Oakland; Monteith College in Wayne State University, Detroit; the University of South Florida; and Harvey Mudd College in California. This leads on to a consideration of the State prescriptions in California, with three examples: the State College of San Francisco, Stanford University, and the California Institute of Technology. A description of two well-known, but atypical liberal arts colleges follows: Amherst and Antioch. Berea College, like Antioch College, has a work-study plan, but of a different kind. Finally the programs of St. John's College, and Sarah Lawrence College are given, and they illustrate the concluding section of this dissertation in chapter 9 on the philosophical foundations of general education. One stands to one side of the Harvard pattern, and the second to the other side.

The division of the fields of human knowledge into the humanities, the social sciences, and the natural sciences is obviously an over-simplification. An analysis by Cassidy of Yale at the start of chapter 7 shows the relationship of the liberal arts and sciences to their professional applications on the one hand, and to their philosophical bases on the other. This leads on to details of the requirements of the professions in America in respect of general education in undergraduate

studies: engineering, architecture, law, medicine, dentistry, pharmacy, nursing, business administration, journalism, music, and teaching.

The opportunity is taken of tracing various methods of arrangement of general studies in section 7.23 on engineering education.

Chapter 8 raises the problem of finding time for all the studies which should be included in undergraduate curricula. Should an extra year be provided? Indeed, is one year less a possibility? Opponents of the practice of general education usually avoid its challenge by stressing the time problem, or by saying that its values can be attained at the secondary school level, or after graduation through adult education. A study of examination papers from M.I.T. (page 111), Columbia (page 114), and Keele in England (page 232) will show that work at this level demands a maturity beyond that of the school-boy or school-girl, and requires far more time than the adult, burdened with employment and domestic responsibilities, could find. Other ways of escaping the challenge of general education are to look to possible alternatives: living in residence, student activities, lecture series, the cultural background of a good home. It is contended in these pages that although these are valuable supplements, they are nevertheless inadequate alternatives.

Chapter 4 separates the first three and the last five chapters through comparisons of Great Britain, Canada, and the United States of America. There is much incisive writing in Britain on the value of liberal education, of which, with certain exceptions, there occurs relatively little in practice. The Colleges of Advanced Technology have good programs of liberal studies. The University of North Staffordshire at Keele has a foundation year of general education, and what would be called in America 'distribution requirements', in the following three years. Beyond this, university undergraduate curricula and British sixth form courses are highly specialized, but less so in Scotland than in England. Chapter 4 contains a full portrayal of British practice with respect to special and general studies. This has been given because a statement of British reactions to the challenge of general education, it is hoped, will serve to sharpen thinking on the subject. For the same purpose Canadian views and practice are described; Canadian universities in this respect are closer to those of Britain and France

than to those of the United States of America.

Reference is made also to Germany, Holland, Australia, and India, to show the geographic spread of discussion on these matters.

It is hoped that this dissertation may be of value to South African university authorities, who are considering at the moment (1963) the possibility of an extra year at the beginning of the university Bachelor's course, and this point is mentioned in section 8.24. The extent to which a country can reject the challenge of general education is outlined in section 4.81; the South African prescription for subjects outside the field of specialization is usually framed in terms of not more than rather than not less than. The difficulties of implementing a general education program can be understood best with respect to universities where general studies are largely absent; here too South African practice provides in section 8.52 a useful basis for discussion. Finally, South Africa is referred to again in section 9.22 in an attempt to define general education, and to show what, at the very least, a program of general education must include to be worthy of the name.

This study was made possible by a Leader Program award of the State Department of the United States of America in 1955, and by a Carnegie Corporation of New York travel grant in 1960. Two stimulating and memorable visits resulted.

This analysis of general education has been undertaken in the conviction that 'thinking on this subject, and fundamental thinking, was never more necessary than it is today', to use the words of the University Grants Committee of Great Britain. It is hoped that these pages will indicate that the world has a great deal to learn about this matter from the United States of America.

------ooOoo------

For references in square brackets, thus [ ], see pages 425 to 437. Pages mentioned in round brackets, thus ( ), refer to pages of this dissertation. The letters pc, when they appear thus^{pc}, mean 'information obtained in a personal conversation'.

CONTENTS

CHAPTER 1

THE PURPOSES OF GENERAL EDUCATION. 1

1.1 THE UNDERGRADUATE AS STUDENT AND THE MAN AS SCHOLAR. 1
1.11 An age of specialization. 1
1.12 The dangers of over-specialization. 2
1.13 The importance of specialization. 6
1.14 The importance of general education. 7
1.15 The false antithesis of the general and the special. 10

1.2 THE PURPOSES OF GENERAL EDUCATION FOR THE MAN IN HIS PROFESSION. 13
1.21 The job ten years after graduation. 13
1.22 British views. 15
1.23 The British Civil Service. 16
1.24 Preparation for careers. 17
1.25 In-plant training? Management courses? 18

1.3 THE PURPOSES OF GENERAL EDUCATION FOR THE MAN IN THE COMMUNITY: LEADERSHIP AND 'FOLLOWERSHIP'. 20
1.31 The views of Ortega. 20
1.32 The aims of universities. 21
1.33 Leadership and national security. 23
1.34 Leadership and underdeveloped nations. 25
1.35 Leadership beyond one's profession. 26
1.36 'Followership'. 27

1.4 THE PURPOSES OF GENERAL EDUCATION FOR THE MAN - AND THE WOMAN - DURING LEISURE HOURS. 28
1.41 The proper use of leisure. 28
1.42 Leisure and the arts. 29
1.43 Stretching the mind. 29
1.44 Time for leisure. 30
1.45 Adult education. 31
1.46 The woman in the home. 31

1.5 PURPOSES OF GENERAL EDUCATION: SOME MISCELLANEOUS PURPOSES - AND SOME RESULTS. 32
1.51 Variety in American education. 32
1.52 Wiser choice of undergraudate curricula. 34
1.53 General education and the prestige of a profession. 36

1.6 WHAT GENERAL EDUCATION IS NOT. 38

1.7 A WIDER VIEW OF THE PURPOSES OF GENERAL EDUCATION. 40

CHAPTER 2

THE CONTENT OF GENERAL EDUCATION AT VARIOUS AMERICAN UNIVERSITIES. 42

2.1 INTRODUCTORY.
2.11 Area of natural sciences. 42
2.12 Area of social sciences. 42
2.13 Area of humanities. 42
2.14 History. 42

2.2 HARVARD COLLEGE. 43
2.21 Concentration and distribution. 43
2.22 Description of some general education courses. 45
The humanities. 45
The natural sciences. 46
The social sciences. 47

2.23 The place of English in general education programs. 50
2.24 The provision of general education courses in the natural sciences. 51
The freshman physical science course. 52
The freshman biology course. 53
2.25 Relation to post-graduate studies. 53
Medicine. 53
Dental medicine. 54
Law. 54
Public administration. 56
The Harvard class of '60. 57
2.26 The freshman seminar program. 57
2.27 Some personal observations. 58
2.28 Some historical comments. 59

2.3 THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY. 61
2.31 The freshman 'core'. 62
2.32 The sophomore 'core'. 62
2.33 Junior and senior year requirements. 63
2.34 Student activities. 64
2.35 English. 64
2.36 Discussions or lectures? 66
2.37 Problems of obtaining and retaining general education teachers. 67
2.38 Personal conversations and personal impressions. 70
Diagram of student activities. 111
Examination papers. 112

2.4 YALE COLLEGE. 71
2.41 Concentration and distribution. 71
A comparison with Princeton College. 73
2.42 English. 73
2.43 The Program of Directed Studies. 74
2.44 Some historical comments. 74
2.45 Residential colleges. 76

2.5 COLUMBIA COLLEGE. 77
2.51 Major or concentration. 77
2.52 Distribution. 77
Foreign language. 77
Physical education. 77
Mathematics and science. 79
English A1-A2. 81
2.53 Contemporary civilization, A and B. 83
The content of CC-A and CC-B. 83
The history of CC-A and CC-B: from 1919 to the present. 85
2.54 Humanities, A and B. 89
The content of H-A. 89
Humanities B -- fine arts. 90
Humanities B -- music. 92
2.55 A history of general education courses in mathematics and science. 93
2.56 The Columbia College program in oriental studies. 94
2.57 Some personal impressions. 95
Examination paper. 114

2.6 THE COLLEGE OF THE UNIVERSITY OF CHICAGO. 97
2.61 Some historical comments. 97
2.62 The aims of the College. 99
2.63 The College curriculum following the 1958 revision. 102
2.64 To College after grade X. 104

2.7 THE UNIVERSITY COLLEGE OF MICHIGAN STATE UNIVERSITY. 107
2.71 Michigan State University. 107
2.72 University College. 107

CHAPTER 3

THE CONTRIBUTIONS OF THE HUMANITIES AND THE SOCIAL SCIENCES, THE BIOLOGICAL AND PHYSICAL SCIENCES, AND COMMUNICATION, TO GENERAL EDUCATION. 117

3.1 THE HUMANITIES. 117
3.11 The College of the University of Chicago. 117
Humanities: 111 - 112 - 113. 118
Humanities: 124 - 125 - 126 (201). 118
Humanities: 201 (126) - 202 - 203. 119
3.12 University College of Michigan State University. 122
3.13 The humanities - some general comments. 124

3.2 THE SOCIAL SCIENCES. 127
3.21 The College of the University of Chicago. 127
3.22 University College of Michigan State University. 130
3.23 The social sciences: some general comments. 132

3.3 THE NATURAL SCIENCES. 134
3.31 The College of the University of Chicago. 134
Biological sciences. 134
Physical sciences. 138
Mathematics. 139
3.32 University College of Michigan State University. 140
3.33 The natural sciences: some general comments. 142

3.4 COMMUNICATION. 143
3.41 The College of the University of Chicago. 143
3.42 University College of Michigan State University. 144
3.43 Communication: general comments. 146

CHAPTER 4

GENERAL EDUCATION IN GREAT BRITAIN AND CANADA AND SOME OTHER COUNTRIES: SOME COMPARISONS. 147

4.1 GREAT BRITAIN, THE UNITED STATES, AND CANADA. 147

4.2 SOME COMPARISONS OF SCHOOL LEVELS. 149

4.3 THE CURRICULUM OF THE SIXTH FORM IN ENGLAND AND WALES. 151
4.31 Historical origin of the English pattern. 154
4.32 Changes recommended in the Crowther and Linstead reports. 156
4.33 The Peterson report. 159
4.34 The outcome of these reports. 162
4.35 British and American schools: some comparisons. 164
4.36 General education at the secondary level in the U.S.A. 167

4.4 BREADTH IN THE CURRICULA OF BRITISH UNIVERSITIES. 169
4.41 The University College of North Staffordshire at Keele. 169
Examination paper. 232
4.42 Provision for general education at certain other universities and university colleges in Great Britain for scientists and technologists. 174
University College, Swansea. 174

	Birmingham University.	175
	Glasgow University and the Glasgow Royal College of Science and Technology.	178
	Cambridge University.	179
	London University.	179
	Leeds University.	179
	Southampton University.	179
4.43	Some general comments.	180
4.44	The University of Sussex and the University of York.	183
4.45	Oxford University.	187
4.5	COLLEGES OF ADVANCED TECHNOLOGY.	190
4.51	Birmingham College of Advanced Technology.	190
4.52	Brunel College of Advanced Technology.	195
4.53	Northampton College of Advanced Technology.	197
4.54	Welsh College of Advanced Technology.	198
4.55	The Royal College of Advanced Technology, Salford.	198
4.56	Other Technical Colleges in Britain.	200
4.6	CANADA.	200
4.61	McGill University.	200
4.62	Toronto University.	203
4.63	York University.	204
4.64	Sir George Williams University.	205
4.65	French-Canadian Universities.	207
4.66	The University of British Columbia.	209
4.67	Canada and general education.	210
4.7	BRITAIN AND GENERAL EDUCATION.	212
4.8	OTHER COUNTRIES.	215
4.81	South Africa.	216
	Joint Matriculation Board.	216
	An extra year?	216
	Law.	217
	B.D. and B.Ed.	217
	Few breadth requirements.	218
	Distribution.	219
	Heavy vocational emphasis.	221
4.82	Rhodesia.	222
4.83	Germany and Holland.	223
4.84	Australia.	225
4.85	India.	229

CHAPTER 5

	COMMUNICATION IN GENERAL EDUCATION: LITERACY AND 'NUMERACY'.	236
5.1	COMMAND OF THE MOTHER TONGUE.	236
5.2	WEAKNESS IN ENGLISH.	236
5.3	LITERACY AND 'NUMERACY'.	245
5.4	AMERICAN PROGRAMS.	248
5.41	"General education in school and college."	248
5.42	"Communication in general education."	252
5.5	A WARNING.	254

CHAPTER 6

	SIMILARITIES AND DIFFERENCES IN GENERAL EDUCATION IN THE UNITED STATES OF AMERICA.	258
6.1	THE UNIVERSITY OF MINNESOTA.	258
6.11	The General College.	258
6.12	The College of Science, Literature, and the Arts.	265

6.13 The University of Minnesota and Michigan State University. 266

6.2 FOUR NEW CAMPUSES. 267
6.21 Michigan State University, Oakland. 267
6.22 Monteith College in Wayne State University, Detroit, Michigan. 269
6.23 University of South Florida. 271
6.24 Harvey Mudd College. 273

6.3 THREE CALIFORNIA CAMPUSES. 274
6.31 The State of California. 274
6.32 The State College of San Francisco. 275
6.33 Stanford University. 276
6.34 California Institute of Technology. 278

6.4 TWO LIBERAL ARTS COLLEGES. 281
6.41 Amherst College. 284
6.42 Antioch College. 288

6.5 SOME UNUSUAL COLLEGES. 298
6.51 Berea College. 298
6.52 St. John's College in Annapolis. 299
6.53 Sarah Lawrence College. 302

CHAPTER 7

GENERAL EDUCATION AND THE PROFESSIONS. 305

7.1 THE RELATIONSHIP OF PROFESSIONAL STUDIES TO THE LIBERAL ARTS AND SCIENCES. 305

7.2 GENERAL EDUCATION: ENGINEERING AND ARCHITECTURE. 309
7.21 Engineering education: a brief history. 309
7.22 The Gullette report. 310
7.23 The study by Holstein and McGrath. 315
Horizontal or vertical? 316
Elective or prescriptive? 317
Depth or breadth? 317
Integration or tradition? 318
Separated or joint? 318
Conclusion. 318
7.24 Contemporary attitudes: faculty, students, employers, and alumni. 320
7.25 General education and architecture. 325

7.3 GENERAL EDUCATION: LAW. 328

7.4 GENERAL EDUCATION: MEDICINE, DENTISTRY, PHARMACY, NURSING. 332
7.41 General education and medicine. 332
7.42 General education and dentistry. 337
7.43 General education and pharmacy. 338
7.44 General education and nursing. 343

7.5 GENERAL EDUCATION: BUSINESS ADMINISTRATION. 345

7.6 GENERAL EDUCATION: JOURNALISM. 351

7.7 GENERAL EDUCATION: MUSIC. 353

7.8 GENERAL EDUCATION: TEACHING. 355

CHAPTER 8

THE CHALLENGE OF GENERAL EDUCATION. 361

8.1 INTRODUCTION. 361

8.2 THE PROBLEM OF TIME. 361
8.21 Principles before facts and techniques. 363
Understanding before memorizing.
Learning before cramming.

8.22 Some general comments. 367
8.23 An extra year? Or one year less? 370
8.24 An extra year in South African universities. 371

8.3 GENERAL EDUCATION: AT SCHOOL? AFTER UNIVERSITY? 375
8.31 Advanced placement, and early admission. 375
8.32 General education at school? 378
8.33 General education in adult years. 378

8.4 SUPPLEMENTS OR ALTERNATIVES? 380
8.41 Living in residence. 380
8.42 Student activities. 382
8.43 Lecture series. 382
8.44 The cultural background of a good home. 386
8.45 Supplements, not alternatives. 387

8.5 DIFFICULTIES OF IMPLEMENTATION. 387
8.51 General. 387
8.52 South Africa. 389

CHAPTER 9

THE MEANING OF GENERAL AND LIBERAL EDUCATION. 393

9.1 A WIDER OUTLOOK. 393
9.11 The Harvard view. 393
9.12 Some different emphases. 397
9.13 Transfer of training. 399

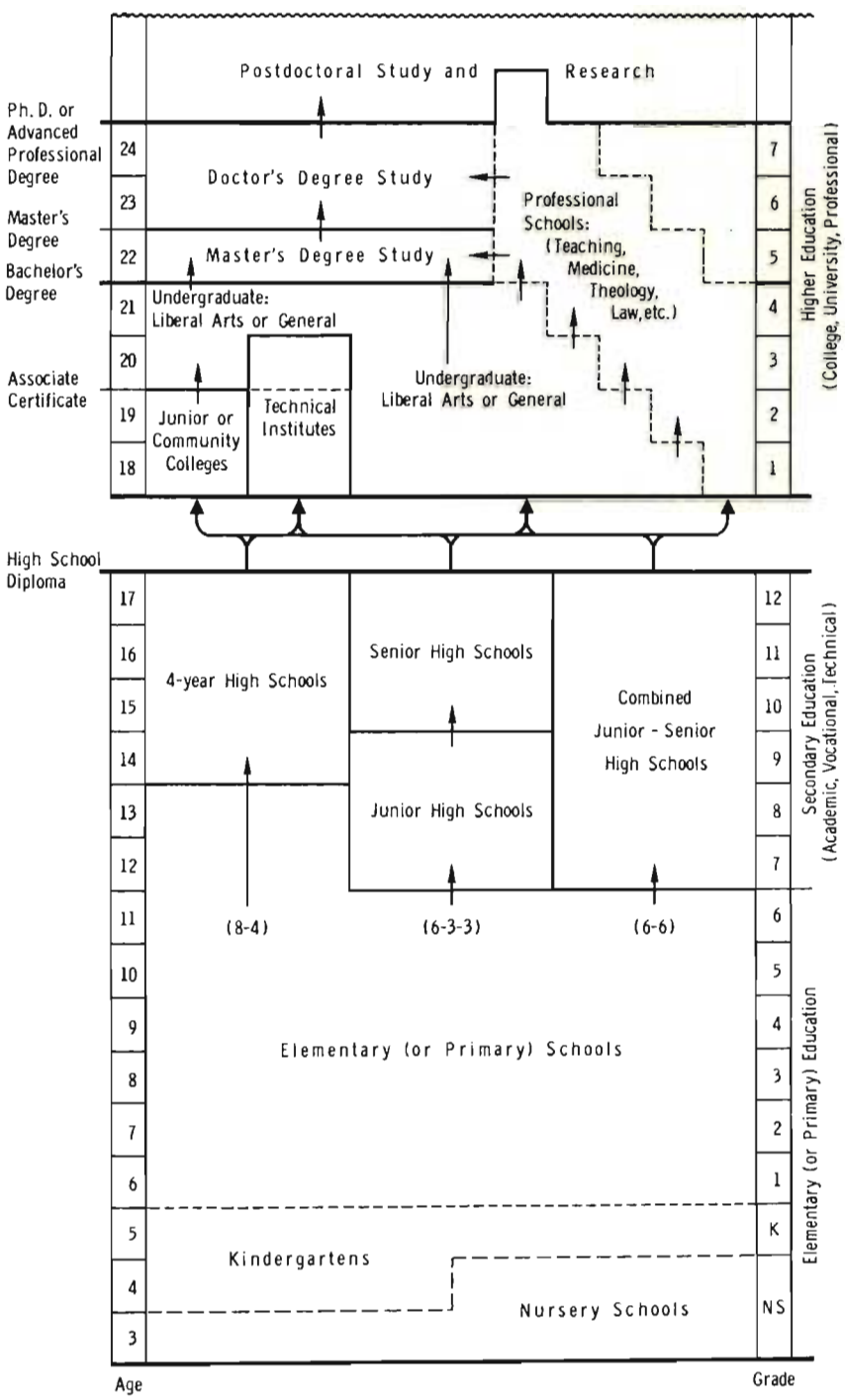
9.2 AN ATTEMPT AT DEFINITIONS. 404
9.21 The meaning of liberal education. 404
9.22 The meaning of general education. 408

9.3 THE AIMS OF UNIVERSITIES. 410
9.31 The views of Mill and Newman. 410
9.32 Technological humanism. 412
9.33 To what ends? 414

9.4 THE PHILOSOPHICAL FOUNDATIONS OF GENERAL EDUCATION. 416
9.41 The philosophy of rationalism. 417
9.42 Naturalism and instrumentalism. 419
9.43 Eclecticism and neo-humanism. 420

REFERENCES. 425

LISTS OF VISITS. 439



The Structure of Education in the United States

CHAPTER 1.

THE PURPOSES OF GENERAL EDUCATION.

The meaning and content of general education were briefly outlined in the preface, and will be more fully discussed in later chapters. What are the purposes behind the wide-spread practice of general education in America? In Great Britain more is said than is done about general education: what theories are advanced there, for the need to extend liberal education[1], and to provide greater breadth in admittedly specialized curricula?

Firstly, the purposes of general education for the student as an undergraduate, and for the man as a scholar, are examined (1.1.); then, secondly, the purposes for the man in his profession (1.2.); thirdly, for the man in the community (1.3.); and fourthly, for the man -- and the woman -- during leisure hours (1.4.).

1.1. THE UNDERGRADUATE AS STUDENT AND THE MAN AS SCHOLAR.

1.11. An age of specialization.

The proliferation of the world's population, and the proliferation of types of occupation following the need for division of labour in our technological age, lead to specialization in preparation for careers. In the United States a hundred years ago 75 per cent of all professional men and women were engaged in four fields: medicine, law, theology, and teaching. Now there are twenty-two hundred occupations requiring highly trained manpower, and ten to twenty more are added annually. [McGrath, 1959a, p. 2] The proliferation of knowledge is both the cause and the result of this development.

The humanities as recently as the sixteenth century were a compact and compassable literature. They cover now not only all literature, philosophy, music, but

---

1. See ch. 9 for a discussion of the meanings of 'general education' and 'liberal education'.

also 'anything that has anything to do with anything in the Metropolitan Museum'. [Harvard report, 1945, p. 108] The social sciences, and especially psychology, have developed largely in this century. But it is in the natural sciences, and in technology that the rapid generation of knowledge is most striking. Dr. James R. Kilian, Chairman of the Corporation of the Massachusetts Institute of Technology, has been quoted frequently as saying that scientific knowledge doubles itself every nine years. We are in the midst of a scientific revolution, and this makes increasing demands on educational curricula from school level to graduate level. Samuel Pepys was already at the Admiralty before he learnt his multiplication tables, but today calculus is often taught as part of school mathematics. One investigation has shown that the standard of certain engineering examination questions set in England in 1926 to final year honours candidates at the end of their third year at University was the same as that of questions set in 1956 to freshmen. [Christopherson, 1956, p. 2] Time must be found for new material at every level, even if many classic subject-matter areas have to be curtailed.

1.12. The dangers of over-specialization.

In this age of specialization, no one would wish to advocate its abolition. But the fact that this is an age of specialization is all the more, and not all the less, reason why the evils of over-specialization should be avoided. The rate of production of new knowledge is remarkable, and unifying concepts are urgently needed today. But as long ago as 1893, Woodrow Wilson (then a Professor at Princeton University) warned that the new drift at that time towards specialization was producing a new ignorance. He asserted that "there is no common mastery, but everywhere separate baronies of knowledge, where a few strong men rule and many ignorant men are held vassals -- men ignorant of the freedom of more perfect, more liberal knowledge ..... The separation of general and special training is an acute symptom of the disease of specialization by which we are now so sorely afflicted." [Thomas, 1962, pp. 45, 46] More recently President A. Whitney

Griswold of Yale wrote an essay entitled 'What we don't know will hurt us'. [Griswold, 1959, p. 17]

What are the dangers of over-specialization? Specialists in the humanities may be scientific illiterates, unable to read of the technological advances of our age at any level higher than that of a popular science magazine. Specialists in the sciences may be educated ignoramuses -- ignorant of the sociological and moral implications of the discoveries of a nuclear age.

Here is the story of Dr. J. Robert Oppenheimer told in rather florid language. "One major result [of the development of technology] has been to catapult the scientist from his ivory tower without parachute or preparation. In his eloquent and disturbing apologia made public last spring J. Robert Oppenheimer -- indubitably one of the most brilliant of living men -- disclosed that he came to maturity as politically immature as a lady in purdah or an Armenian anchorite. A master in the field of physics, Doctor Oppenheimer told the Atomic Energy Commission he knew nothing of history, economics or political science until he was approaching middle age."

"The Oppenheimer memoir is significant. It tells the story of a cloistered man whose misled idealism made him, in a time of world-wide economic collapse, naïvely tolerant of communists and some of their ideas. In later years he was to become the operations master at Los Alamos -- the man who, more than any other, made possible the atomic drops on Hiroshima and Nagasaki which ended the Japanese war." [The Saturday Evening Post, 23rd April, 1955, p. 40]

There is as much danger that the average college audience may be ill-informed as that the leading scientist may be narrow in his interests. "That many who have spent four or more years in an institution of higher education are innocent of much of the reliable knowledge of their day is attested by the experiences of the author of a best-seller on the social implications of atomic energy ..... He remarked that discussions with college audiences revealed that on many matters of fundamental significance they were no better informed and hardly more curious than the man

in the street." [McGrath, 1959a, p. 19] (This may sound like a poor advertisement for general education in America. The plea, however, is that more, not less, general education is evidently needed).

C.P. Snow [1959, ch. 1] admits that his treatment of this subject in his book on the 'two cultures' may be oversimplified, but few writers are as well qualified as he is to describe the gulf[1] between the two groups, "comparable in intelligence, identical in race, not grossly different in social origin, earning about the same incomes, who had almost ceased to communicate at all, who in intellectual, moral and psychological climate have so little in common that instead of going from Burlington House or South Kensington to Chelsea, one might have crossed an ocean." Indeed "one found Greenwich Village talking precisely the same language as Chelsea, and both having about as much communication with M.I.T. as though the scientists spoke nothing but Tibetan." He describes two polar groups: "literary intellectuals at one pole -- at the other scientists, and as the most representative, the physical scientists. Between the two a gulf of mutual incomprehension -- sometimes (particularly among the young) hostility and dislike, but most of all lack of understanding ..... This polarisation is sheer loss to us all. To us as people, and to our society. It is at the same time practical and intellectual and creative loss..... The degree of incomprehension on both sides is the kind of joke which has gone sour." He describes scientists to whom the whole literature of the traditional culture does not seem relevant, and on the other side, those who could not describe the second law of thermodynamics, indeed those who do not know what mass and acceleration mean. "This cultural divide is not just an English phenomenon: it exists all over the western world. But it probably seems at its sharpest in England, for two reasons. One is our fanatical belief in educational specialisation, which is much more deeply ingrained in us than in any country in the world, west or east. The other is our tendency to let our social forms crystallise ..... Once anything like a cultural divide gets established, all the social forces operate to make it not less rigid, but more so." Frequent pleas are

---

1. For a less serious discussion of the 'gulf', see p. 311.

heard to humanize the scientists. Not so often is stress laid on the need to 'simonize the humanists'. "Ignorance of science by arts students is probably more prevalent than ignorance of the humanities by science students," says the British University Grants Committee.[UGC, 1959, p. 38]

The Committee talks of "a time like the present when the human mind is as never before 'master of so many facts and sure of so few principles'..... The danger, at a time when the volume of available knowledge even in narrow fields in so enormous, is that the utilitarian purpose of the special subject will drive the student to memorise as much as possible of this knowledge in the limited time available, leaving him with no time to develop his power of thought or to acquire any knowledge outside this subject. We fear that the drive to acquire a maximum of specialised knowledge to the exclusion of other things is too often abetted by the teacher, himself perhaps the victim of excessive specialisation." [Ibid., pp. 38, 39]

A degree of ignorance of fields outside a man's speciality is inevitable, but ignorance of one's own ignorance is inexcusable. A caustic critic has said that specialist subjects are taught in a specialist fashion by specialist professors in our 'monasteries of specialization' to students who know that the economic and academic rewards go to specialists, and who then proceed to work within the narrow confines of their sub-sub-disciplines. Depth of experience in the subject matter of one university field becomes more important than the total intellectual experience of the student. Universities are divided into departments, and knowledge is divided into compartments. The unity of knowledge is destroyed and intellectual activity flourishes at the expense of wisdom. The essential work of coordination falls to lesser minds, for the specialist has other interests. José Ortega y Gasset says: "The specialist 'knows' very well his own,tiny corner of the universe; he is radically ignorant of all the rest ..... a human product unparalleled in history ..... Previously, men could be divided simply into the learned and the ignorant, those more or less the one, and those more or less the other. But your specialist cannot be brought

in under either of these two categories. He is not learned, for he is formally ignorant of all that does not enter into his specialty; but neither is he ignorant, because he is 'a scientist', and 'knows' very well his own tiny portion of the universe." And here is the final indictment: "We shall have to say that he is a learned ignoramus, which is a very serious matter, as it implies that he is a person who is ignorant, not in the fashion of the ignorant man, but with all the petulance of one who is learned in his own special line." [Ortega, 1929, pp.81, 82]

1.13. The importance of specialization.

We must beware of pressing this argument too far. Lord James warns against an uncritical acceptance of the supposed dangers of over-specialization. The remedy may be worse than the disease, and the complaint that too many specialists are lacking in culture sometimes rests on too narrow a definition of culture, he says. [James, 1949, p. 71] Standards of scholarship can be maintained only through what Sir Richard Livingstone has called 'deep-digging'. Deep study of a limited field is essential to counteract the idea that knowledge is embalmed in text-books and lecture-notes. The study of a discipline requires disciplined study.

Study in depth starts a chain of discovery, and a development of self-confidence, as the student passes from the stage of being a learner in a subject to that of becoming a scholar with some mastery of a subject. Inevitably the student and the scholar branch out from their subjects into related fields. The honours school of Literae Humaniores (Greats) at Oxford is a classic example of specialization or study in depth. With the aid of a precise linguistic discipline, it develops into a knowledge of the literature, the history, the art, and the thought of the great cultures of the world.

Dr. C.T. Bissell, President of the University of Toronto, has said: "This university is committed to a high degree of specialization. I realize that specialization has become a nasty word in educational circles, but this arises chiefly from a narrow set of presuppositions. Specialization can be narrow if it is associated with mastery of a technique and with a sullen

addiction to intellectual isolation. But specialization when it is associated with the study of one of the major disciplines, whether in the humanities, the social sciences or the sciences, is a major road to liberal education. It provides depth, and if the subject or subjects of specialization are taught historically and philosophically, it will encourage the student to make his own forays into other areas and to make associations and connections with other disciplines." [Bissell, 1959, p. 4]

The able student, fresh from high school, is enthusiastic to get at the grass which is greenest. The not-so-able student alike wants to study those subjects which he has found to be of greatest interest, as soon as he reaches university. This enthusiasm must be used early, and developed fully.

1.14. The importance of general education.

The thesis here advanced is: granted that study in depth is indispensable, so too is study in breadth, and study in depth and study in breadth are not mutually exclusive. Indeed if knowledge is a true whole, depth of understanding in one field and breadth of appreciation of many, are parts which enrich not only the whole but also each other. The antithesis of the special and the general is a false one.

What essentially is the aim of study in breadth? Firstly, the student must be able to see his special field in the context of the whole of knowledge. It is a truism that one object of a university education is not only to enable the student to learn, but also to ensure that he learns to learn. Study in depth provides the finest possible exercise to this end. But it is a naive belief in the possibility of transfer which assumes that study in depth will automatically lead to study in breadth. Snow could never have written his book on the two cultures and described the gap between them -- Sir John Maud [1960, p.6] to a South African audience talked of the donga[1] between them -- if transfer happens inevitably. Transfer is indeed possible, but only if planned, and undergraduate curricula should

1. A donga is like a dry river bed, formed by erosion through aridity -- nearly always dry, but sometimes overfull with storm-water producing more erosion.

enforce general education alongside special education for this very purpose.

President Plimpton of Amherst College, expressed the view that undergraduate education should be functional not technical. A functional education is one which provides a constant growth of comprehension, not in subjects, but in the three main areas of human knowledge -- the humanities, the social sciences and the natural sciences.[1] The curriculum at Amherst College -- perhaps the most sought-after college in the United States -- is based on this principle.

Secondly, general education should develop a humility which reminds the student that he does not know all the answers, but gives him the curiosity to look for them, and the confidence to know where to find them. General education should develop the humility which comes to the student who knows enough about a subject to know who knows it better. William James said that an educated man knows a good man when he sees one.

Dr. Athelstan Spilhaus, Dean of the Institute of Technology of the University of Minnesota believes that, since not only muscular but routine mental operations can now be performed by machines, it is all the more important that we educate for that quality that machines can never have -- creativity. He does not believe that this could be adequately achieved by specialist curricula such as he himself had followed as an undergraduate in a South African university.[pc] With the quality of creativity, go the qualities of adaptability, flexibility, and individuality. McGrath in the many books he has written or edited stresses again and again that specialization is the enemy of adaptability, making difficult a wise reaction to an entirely new problem, whether technical or human. Techniques change often enough to make flexibility imperative. Sir Eric Ashby believes that"the humanities ..... should be instruments to enhance the individuality of students, to resist that levelling of differences in taste and personality, that tendency to increase social entropy, which is a melancholy consequence of the modern techniques of mass communication." [Ashby, 1958a, p. 86]

---

1. Personal conversation, referred to hereafter as 'pc'.

Thirdly, general education provides for some measure of common learning in all the fields of human knowledge. A sense of individuality is accentuated, not diminished, as the student comes to understand his identity with all men through the breadth of his knowledge. This is a humane education, and a humanistic education. Dr. Kilian when he was President of the Massachusetts Institute of Technology said that "humanistic education is not necessarily a product of the study of the humanities. Breadth and humanism may be achieved by the study of law, of medicine, of engineering, of the liberal arts, and of the social sciences. They may also be lacking in any of these fields', and although Dr. Kilian did not say so, they could be lacking in a professor of the humanities! "It is the outlook, the humanity, the wholeness of the teacher, the humane spirit of a community of teachers governed by ideal aims which are really important in achieving breadth and humanism in education." [Kilian, 1953] The following quotation is of special interest because it comes from a book whose authors were drawn from six of the best known American universities and schools; Andover, Exeter, Lawrenceville, Harvard, Princeton, and Yale. [Aelhpy, 1953, pp.25, 26] "Whatever a man's special function in society may be, he has problems and needs in common with other men. We all face the same world of nature whose laws we must try to understand; we are all subject to the same social environment with whose complexity we must deal; and all of us are confronted with similar age-old moral choices. We must have some common understanding of the ideas and ideals on which our civilization depends and which we are therefore not free to ignore. If a democracy shaped not by a picked few but by all of us is to function, we must understand a good many problems -- personal, social, and scientific -- with which men and women even a century ago were not obliged to deal. This is the argument for that general part of a liberal education which is designed to give the skills, the understanding, and the values which all men need, whatever their life work or particular calling."

The Harvard report gave so great an impetus to general education after 1945 that it is well to note

again that these ideas were discussed fifty to one hundred years earlier in the United States. "Both Wilson[1] and Harper[1] were aware of the price which liberal education was paying for the departmentalization of knowledge. In declaring that a liberal education is not the sum of a number of discrete parts but the power to discern the interrelationship of parts both within and without the student's field of specialization, they raised a question which lies at the heart of the concept of general education. Their ideas were related to Tappan's[1] conception of a 'philosophical' form of education which produces the capacity to relate all the fields of knowledge which enter into the well-being of society; and like Tappan, they consider a thorough general foundation in the major disciplines the basis for achieving this goal." [Thomas, 1962, p. 47]

1.15. The false antithesis of the general and the special.

It has been noted that discussion of the dangers of over-specialization must not lead to ignoring the importance, indeed the inevitability, of specialization. Discussion of the importance of general education must not, on the other hand, lead to a request for some kind of encyclopaedic ideal for undergraduate knowledge. Dean Burchard says that "even in the Fifth Century in Athens, where versatility was admired and at least a few men were versatile, it is doubtful that anyone had anything resembling a universal versatility." Erasmus, often called 'the last univeral man' and Leonardo da Vinci were far from universal in their contributions to letters and to science and to art, says Burchard. [Burchard, 1953, pp. II 8,9] As for the modern undergraduate -- the story is told that Bertrand Russell, discussing the proliferation of knowledge, pointed to the Ten Commandments which were prominently displayed in a college of an ancient university, and said:

---

1. Woodrow WILSON was a Professor at Princeton University in the 1890's. William Rainey HARPER was the first President of the University of Chicago (1891 - 1906). Henry P. TAPPAN became President of the University of Michigan in 1852. The views of three famous Presidents of Harvard University, ELIOT, (1869 - 1909), LOWELL, (1909 - 1933), and CONANT, (1933 - 1953), are discussed on pages 60 and 61.

"Candidates should not attempt more than five questions."

The plea in these pages is primarily for recognition of the importance of general education, so that special studies may be seen in the context of general studies; too often general studies are ignored or neglected. It is interesting to note, however, that general education without special education may prove equally lopsided. The Bell Telephone Company of Philadelphia in 1953 arranged that the University of Pennsylvania should develop an Institute of Humanistic Studies for Executives. Bell sent executives, aged between 30 and 40, in groups of 20 at a time for a nine-month full-time course in humanistic studies with all expenses, including living expenses and salaries, paid. The students studied every possible subject except telephone engineering or business management. The work of the year covered practical logic, economic history and thought, the history of music, world art, comparative and general literature, social science, ethics, natural sciences, American civilization, political science and international relations. In 1955, Mr. W.D. Gillan, President of the Bell Telephone Company of Philadelphia, and Dr. W. Rex Crawford, Head of the Institute at the University of Pennsylvania, both expressed emphatically the opinion that it was successful.[pc] In 1960, it was found that the course had been discontinued. It is the view of Mr. Howard W. Johnson, Dean of the School of Industrial Management of the Massachusetts Institute of Technology that it failed because it was 'too general': the complete divorce from special education had introduced a fundamental weakness.[pc]

General education is not a matter of merely studying 'other' subjects. Latin and Greek are usually thought of as liberal and humanistic disciplines par excellence, yet they may be taught in such a specialist fashion as to be an arid retreat into a dead past. Electrotechnics on the other hand, if related to our modern technological age in its treatment, could prove to be a subject imbued with qualities of general education. Professor Sindlinger of Teachers' College, Columbia University, on the other hand, told of a course he took in Philosophy 'as specialized as thermodynamics',

and of a course he took in Greek so general that 'we lived in Athens in the Fifth Century B.C.'[pc] Breadth and depth are not only reconcilable: they are complementary. We may well need a microscope for special studies to investigate minute detail, and a telescope for general studies to bring vast subjects near, but the microscope and the telescope reveal truths about one and the same universe.

The authors of the Harvard report put forward "an idea of education as, for all and at all stages beyond the earliest, both general and special. These two sides of education should be thought of as connected, the special forever flowing out of the general and forever returning to and enriching it. Certainly their separation maims and impoverishes each, since higher and more universal relationships are empty except as they bear on particulars, and particulars in turn run into chaos and conflict unless they find place in a larger whole." [Harvard report, 1945, p. 103] Indeed, it appears that the authors of the Harvard report think of general education as no <u>part</u> of education, but as the very <u>whole</u>. "General education and special education are not, and must not be placed, in competition with each other. General education should provide not only an adequate groundwork for the choice of a specialty, but a milieu in which the specialty can develop its fullest potentialities. Specialization can only realize its major purposes within a larger general context, with which it can never afford to sever organic connection. General education is an organism, whole and integrated; special education is an organ, a member designed to fulfill a particular function within the whole. Special education instructs in what things can be done and how to do them; general education, in what needs to be done and to what ends. General education is the appreciation of the organic complex of relationships which gives meaning and point to the specialty. To some degree it should suffuse all special education." [Ibid., p. 195]

John Stuart Mill, nearly a century ago, spoke of the need for 'capable and cultivated human beings'.[Mill, 1867, p. 20] Specialism may make students capable; generalism may make students cultivated; an educated

man is both.

1.2. THE PURPOSES OF GENERAL EDUCATION FOR THE MAN IN HIS PROFESSION.

1.21. The job ten years after graduation.

Very frequently the view is expressed in the United States that the purpose of general education is not to prepare a man for the job he takes the day after he graduates, but for the job he takes ten years after graduation. Dean B.R. Teare, of the Carnegie Institute of Technology, Pittsburgh, keeps three envelopes in a desk drawer for visiting alumni, who are always only too ready to explain how their own courses in engineering might have been improved. Dean Teare interrupts to ask how many years back they left Carnegie, and produces an envelope from a desk drawer either with 0 - 5, or 5 - 10, or 10+ written on the front, wherein, before the alumnus can speak, is found what he was about to say. Those who had left up to five years before would have liked more engineering subjects. After five years the alumni would have preferred more basic mathematics and physics and chemistry. After ten years? -- more humanities and social sciences.[pc] This homely story needs further analysis.

"That is not really the most practical education which leads men soonest and most directly to practice, but that which fits them best for practice," said Tappan over a hundred years ago. [Thomas, 1962, p. 23] And Plato "did not hold the strange view that we are beginning to abandon, that education could be completed at school or at university: his ruling class only reach the climax of their education at 50, and even then continue to divide their lives between thought and action, the world and the study." [Livingstone, 1944, pp. 6,7]

The engineer will find ten years after graduation that his problems are more likely to be human problems than technical problems. Half of the science graduates at the Massachusetts Institute of Technology finish their careers in jobs outside of science. Students at Antioch College (all of whom are on the 'cooperative' basis), whether they be philosophy majors, or sociology

majors, or science majors, find their general education of increasing value as they reach more senior positions.

Technical education may be ever-narrowing, whereas liberal education can be ever-widening. In employment, the pressure of the job tends to the cramping of interests, instead of their unfolding, resulting in the 'trained incapacity' of the narrow expert. In the very large concerns of the United States, intense competition encourages specialization, and a humanistic outlook is much needed to balance this tendency. Industrial leadership is constantly becoming broader. A generation ago it called for knowing industry: today it calls for knowing mankind. Since society is dynamic, tomorrow the task will be more demanding. The huge corporations of America demand business men of the calibre of statesmen to lead them. They and their juniors alike, must be familiar not only with the problems of advancing technology, but of suburban and municipal planning, of local and national politics, of labour and racial policies, and of international relations. A manager of one of the largest Socony-Vacuum Oil Companies has said: "In my job I use every skill I ever acquired except a knowledge of refining." This appears to be an over-statement, but it illustrates that the technical knowledge of the young graduate is not enough for executive responsibility. A leading executive of Dunlop South Africa Limited, in Durban, said that in his experience staff failures seldom arose from a lack of knowledge of engineering or chemistry, but more usually from an inability to understand human relations.[pc]

The background and the ability for broad decisions become increasingly important with greater seniority, especially in the face of new situations. A well-trained man may know <u>how</u> to answer most questions, but an educated man will know <u>what</u> questions to ask. He will exhibit qualities of vitality, curiosity, and methodical thinking. For him principles are more important than how-to-do-it techniques: he is a leader of men and not of machines.

It may well be true that recruiting officers in the United States, visiting universities to look for new employees for their companies often stress technical education more than general education.[1] The views

1. 'Looking for a pre-cooked man who merely needs heating'!

expressed in the previous paragraphs are those which come from American leaders of industry and commerce. It may be interesting to turn to British views on the subject.

1.22. British views.

"Engineering concerns the applications of science to the needs of man and society. It is therefore inseparable from humanism. The engineer is up to his neck in human problems whether he likes it or not. He is producing changes in man's mode of life over an extending range and with increasing speed and directness, and raising social problems the consideration of which must form an integral part of his technical and administrative thinking and decisions," says one prominent British thinker, Sir Willis Jackson. [1960, p.1]

Another, Sir Eric Ashby, Master of Clare College, Cambridge, expresses the view that specialization in academic training produces experts to advise on policy, not leaders to make policy: the assumption (in Britain) that the technologist is to become and remain an adviser to serve the manager, and never the manager himself is utterly obsolete in the second industrial revolution which is upon us now. [Ashby, 1958b, pp. 480, 481]

The influential University Grants Committee says: "Many university students will come to hold senior positions of responsibility in the various walks of life which they will enter. If they are to acquit themselves well in these positions they will need more than the specialised knowledge provided by their undergraduate courses. They will need to become educated men and women." The Committee goes on to analyze the qualities of mind which distinguish a person of education, and continues: "Unless the student acquires such powers he will not go far even in his specialty, but with them he will be equipped even if he enters an occupation to which his speciality has no direct relevance." [UGC, 1959, pp. 38, 39]

Sir Arnold Plant is the Professor of Commerce at the London School of Economics. He has said: "The young manager today requires a much wider and higher attainment in general education than was available to

his predecessor ..... There can no longer be any general expectation of maintaining the level of managerial ability by recruitment from school leavers seeking immediate employment. In fact the most able group now go on to the university on scholarships..... But it is necessary to add a third statement -- 'a university education no longer implies a liberal education'. If, indeed, some qualities which a liberal education should develop are needed in management, it is no good hoping that the possession of a degree in chemistry or engineering guarantees them. Indeed the reverse may be true. The pressure to reach a high technological standard may actually narrow the undergraduate in comparison with the boy who is gaining a rough and ready experience of life at work. In a word, the recruit from the university may have a well-trained mind; but it will have to be filled with more than scientific theory." [Plant, 1953, p. 7]

1.23. The British Civil Service.

The reference above to 'an occupation to which his speciality has no direct relevance' leads to a brief discussion of the British Civil Service. The élite of the British permanent Civil Service consists of 3,000 men in the administrative grade. In 1950, of 332 civil servants above the rank of assistant secretary, 60% were from Oxford and Cambridge. Of young recruits in 1948 to 1956, 53% had studied classics or history (and only 1% science). [Sampson, 1962, ch. 14] "The young assistant principal, fresh from his First in Greats or mathematics [at Oxford], is confronted with the problems of the Board of Agriculture and Fisheries, or the Ministry of Fuel and Power, and he is thought to be able to deal with their general administrative solutions more expertly than the professional fish-canner or mining engineer." [James, 1949, p. 56] "The Ministry of Aviation ..... employs 3,000 scientists ..... but the Ministry of Aviation is run by Latin and history scholars, headed by an unscientific minister ..... It is a central tenet of the modern Civil Service that administration is an art, which can be applied to anything, and the senior mandarins are switched overnight from running prisons to encouraging exports." [Sampson, 1962, ch. 14]

"The professional Civil Service is a Victorian invention -- dating back to that dynamic third quarter of the nineteenth century when so many of Britain's institutions took shape ..... The Victorian idea was that administrators should be chosen, not with special experience of government, but as intelligent, well-educated amateurs -- a crystallisation of the amateur ideal which runs through English life. This crucial principle was stated by Lord Macaulay, who recommended the reform of the Indian Civil Service in 1854 in a famous and influential passage:

> 'We believe that men who have been engaged, up to twenty-one or twenty-two, in studies which have no immediate connection with the business of any profession, and of which the effect is merely to open, to invigorate, and to enrich the mind, will generally be found in the business of every profession superior to men who have, at eighteen or nineteen, devoted themselves to the special studies of their calling. The most illustrious English jurists have been men who never opened a law book till after the close of a distinguished academical career; nor is there any reason to believe that they would have been greater lawyers if they had passed in drawing plans and conveyances the time which they gave to Thucydides, Cicero, and to Newton'." [Sampson, 1962, ch. 14]

This statement may sound extreme to modern ears in this century. The brilliance of top-flight British civil servants however is undeniable. When every allowance is made for the fact that the graduates of Oxford and Cambridge constitute an élite group, it can, at the very least, be said that here is evidence that a solely specialist education is not a sine qua non for specialist careers.[1] The success of the British system, says Lord James, is evident "when we regard the record of our small administrative Civil Service, who, in their conduct as well as in their education and their achievements, have surely approached more nearly to the ideal of philosopher-kings than any other similar group in any society." [James, 1949, p. 56]

1.24. Preparation for careers.

It is important and valuable then that the preparation for a career should follow an undergraduate education not devoted solely to one specialty, not only

---

1. Paradoxically, British university education in practically every other respect represents a denial of this statement.

for the sake of breadth of education, but for ultimate success in a profession. Few students pursue learning for the sake of learning, and most of those who appear to do so have one eye on a University teaching post! The wish for success in the chosen career may thus be used as a powerful motivating factor in encouraging students to appreciate and enjoy general education. It will be seen shortly that general education also makes for wiser and wider choice of a career.[1] It is also claimed in the United States of America that the inclusion of general education in the educational preparation for a career enhances the prestige of the profession.[2]

It may appear that the discussion above, in so far as it concerns American practice, refers largely to engineering. It will however become apparent that the same considerations hold for education for medicine, law, business, pharmacy and other walks of life. Even in forestry, one study made in 1953 of 700 practising graduates reports that they believed "that their college studies had been deficient in liberal arts courses; this they said made a particular difference in later years as they moved on to higher positions." [Sanders, 1954a, p. 3]

1.25. In-plant training? Management courses?

Can the above objectives be achieved by in-plant training? Little support has ever been given to this suggestion. Here follows a flat rejection: "Current practice assumes that the way to increase technical efficiency is to increase technical in-plant training. My own conclusion after some study of the question, is exactly the opposite -- that the best case can be made for more exposure of embryo engineers to economics, literature, law, psychology, history, political science, and as much purely general education as they can absorb. This is no educator's plea for the humanities but a genuine conviction on my part that no other device to increase the engineers' efficiency will work. Not only in the universities, but also in the high powered company training programme, we continue to train them

1. See page 34.
2. See page 36.

for jobs that in fact no longer exist. [Odiorne, 1955]

Can the above objectives be achieved by management courses? Management courses are essential in countries where efficient organization of men and machines make possible a higher standard of living for so many people. Old techniques of management must be improved and new ones explored. Attention must be given not only to business as such, but to business in relation to the economic, social, political, and cultural aspects of the nation. The major executive must possess not only highly effective business training, but also great understanding of our society and culture. He must have profound insight into human nature and an awareness and perspective of important historical and contemporary influences which shape the modern world. Courses in management are valuable, and all the more so five or ten years after the commencement of a career. It may be good for the young man to learn from his mistakes, but there is no reason why he should go on indefinitely learning the hard way. When he has reached the stage of seniority where mistakes begin to matter seriously, he will appreciate the theory of management subjects, from which he may learn from the experience of others how to avoid mistakes.

But management courses are not enough: indeed they will be the richer for being built on a basis of undergraduate general education. The pressure of the job narrows rather than expands, and leads to over-conformity. Management courses may result in confining habits of thought. It is too easy for management courses to become just another specialization. Liberal studies add a dimension to management studies without which executives will be less able to measure up to the challenges they confront and will continue to confront in the foreseeable future. Mr. Howard W. Johnson, Dean of the School of Industrial Management at M.I.T., expressed the view that a student could not become liberally educated through a 'one-shot-in-the-arm' management course. Four years of general education with the hundreds of conversations and thousands of ideas from a wide range of subjects which go with these four years are essential for a liberal undergraduate education, he believes.[pc]

Can business and industrial organizations wait for the right man to 'turn up'? Do good managers just appear accidently? In the days of the small family business, the son or the son-in-law may or may not have proved to be a good manager. Larger organizations find that good managers do not appear by accident -- by accident of birth, or otherwise. Graduates will find in their first ten years that "a good deal will be caught by them not taught to them ....., but an indispensable task for the educator is to create an awareness of what must be caught as well as taught." [Venables, 1951, p. 311]

One final query needs consideration here. The emphasis has been strongly on developing leadership within a profession. What about those who will never achieve executive status? The British Ministry of Education in an all-important circular [No. 323 of 13th May, 1957, p. 3] has this to say about "Human relations: Students need some introduction to the significance for industry of good human relations, especially in view of such problems as, for example, the increasing use of automation. It is good management to secure a sense of 'belonging' in the employees of a firm, and the achievement of this is dependent in part upon an understanding of the structure of the organisation, a knowledge of its sources of raw materials, its processes, its markets for the finished products, the state of the order book, and an appreciation by the individual of the significance of the part he plays in the organisation." A wise manager will ensure that his juniors do understand their part in his organization. Both will thus more easily achieve the necessary measure of cooperation and understanding for a liberal education.

1.3. THE PURPOSES OF GENERAL EDUCATION FOR THE MAN IN THE COMMUNITY: LEADERSHIP AND 'FOLLOWERSHIP.'

1.31. The views of Ortega.

A man's first responsibility to his community is to give service through efficiency and enthusiasm in his vocation. He should see his career as a calling, and aim to put more into his work than he gets out of it. If, however, a profession does not provide the

community with leaders in fields outside of its own, it may find that the community has little true respect for it. "Society needs good professional men -- judges, doctors, engineers -- and therefore the university is prepared to furnish professional training. But society needs before this, and more than this, to be assured that the capacity is developed for another kind of profession, the profession of governing. In every society someone governs, whether a group or a class, few people or many. By 'governing' I mean not so much the legal exercise of authority as a diffuse pressure, or influence, exerted upon the body politic. To-day, [1930] the societies of Europe are governed by the bourgeois classes, the majority of whom are composed of professional men. It is of the first importance to these societies, therefore, that these professional people, aside from their several professions, possess the power to make their lives a vital influence, in harmony with the height of their times. Hence it is imperative to set up once more, in the university, the teaching of the culture, the system of vital ideas, which the age has attained. This is the basic function of the university. This is what the university must be, above all else." [Ortega, 1930, pp. 45, 46]

1.32. The aims of universities.

Learning for learning's sake may well be a noble theory of university educators[1], but it is so ideal that it is not the objective of the students in practice. Their customary objective of preparation for a career is too limited and too limiting.

Universitas means 'the whole'. "The use of the term in mediaeval Latin for a university in the present sense is probably due to such a body being a universitas facultatum, or combination of all the Faculties, but there was also possibly an idea of the whole of learning being taught." [Wyld, 1936, p. 1324] This dissertation will make no case for encyclopaedic knowledge for any man: not only is it impossible of attainment, but such

1. James [1949, p. 33] says: "It is inevitable that, faced with the challenge of the new scientific knowledge, Newman should lend his superb writing to a defence of the view that the function of the university was to enshrine useless knowledge." Underlining added.

an objective would be contrary to the very aim of general education, which is to provide not a shallow survey of all subjects, but a deep study of selected aspects of each major field, and above all, of some idea of the methodology of every field. The primary function of the university is to teach the great cultural disciplines, says Ortega: the physical scheme of the world (physics), the fundamental themes of organic life (biology), the historical process of the human species (history), the structure and function of social life (sociology), and the plan of the universe (philosophy). [Ortega, 1930, p. 58] He pleads in fact for a 'Faculty of Culture' which would be "the nucleus of the university and of the whole higher learning." His translator and editor, Norstrand, in a footnote to this remark, says: "The American college or university might better seek to solve the administrative problem through a committee representative of the whole faculty, serving as a spearhead for the reform yet democratically stimulating and co-ordinating the initiative arising from all parts of the institution." [Ibid., p. 68] This in fact is very much the function of the Committee on General Education at Harvard University.

A man learned in his profession is not necessarily cultured, says Ortega, in the sense that he knows the vital system of ideas of a period.[1] "The convulsive situation in Europe at the present moment [1930] is due to the fact that the average Englishman, the average Frenchman, the average German, are uncultured: they are ignorant of the essential system of ideas concerning the world and man, which belong to our time. This average person is the new barbarian, a laggard behind contemporary civilization, archaic and primitive in contrast with his problems, which are grimly, relentlessly modern. This new barbarian is above all the professional man, more learned than ever before, but at the same time more uncultured -- the engineer, the physician, the lawyer, the scientist. The blame

---

1. The stress on the ideas of a period is all-important. McGrath [1959a, pp. 6, 7] says that "education has been vital and effective when it has been concerned with the real life of the period, and lifeless and fruitless when it attempted to preserve culturally outmoded forms and practices whose reason for being has passed."

for this unpredicted barbarity, this radical and tragic anachronism, rests primarily with the pretentious nineteenth-century university of all countries." [Ibid., pp. 44, 45]

1.33. Leadership and national security.

To relate the convulsive situation in Europe in 1930 to lack of culture among professional men may sound far-fetched. A similar view, however, is frequently heard in the United States of America a quarter of a century and more later. Griswold, writing in 1958, said: "The pages of history are full of instances of the collapse of nations and the decline and disappearance of civilizations that began with cultural decay and were accompanied and hastened by it. Failure of the United States today to live up to the ideals and fulfill the promise of its own civilization could have similar results. We are engaged in something more than a race into space. The prospect is that, although we may soon go voyaging among the planets, we shall have to return from our travels and continue to dwell upon the earth. Our ability to do so successfully -- that is to say, more successfully than other animals and civilizations that have become extinct -- will depend upon two things. We shall have to produce not only a scientific competence but also a political and a social competence equal to the task ..... One thing is certain. We shall not achieve the minimum military security essential to the continuance and further development of that way of life unless we improve upon one particular kind of education. This is the kind that culminates in mastery of the basic sciences, the humanities, and the social sciences, that produces through its followers the scientific discoveries upon which our technology is founded and much of our physical welfare and our military security depend -- the knowledge and wisdom that shape our laws and social institutions and guide our public policies; the spiritual and aesthetic refinement that bears fruit in our arts. It is from this kind of education that all the major professions -- medicine, law, divinity, teaching, the sciences, and increasingly the fine arts and engineering -- recruit their apprentices. For it is this kind of education that

most fully and effectively develops the ability of the individual to grapple with the difficult tasks demanded by these professions. In increasing measure, too, business and industry are turning to this kind of education for technicians and managerial personnel; and the armed forces, having judged its results in two world wars, have given it a preferred place in their officer-training programs. Thus it is to this kind of education that we must look for the competence that will enable us to survive and, we hope, prosper in the world in which we are fated to live." [Griswold, 1958, pp. 47, 48] Griswold returns to the point, and expands it. "The security of the United States depends as much upon the degree to which our culture and our way of life command the respect of the free nations and hold out hope to the people of the unfree as it does upon our ability to overawe and impress either by military prowess or races in interstellar space. The rueful reports of American diplomats abroad contrasting with the receptions accorded American artists in countries whence these reports emanate suggest that we have much to learn in this respect. The American image of Now is a more important factor in the cold war than we think it is. It is said that when the cannon are silent the muses are heard. May not the reverse also be true, that when the muses are heard the cannon are silent? And might these not be our muses (and cannon) and other peoples' cannon (and muses)?" [Ibid., p. 86]

Perhaps the Americans are especially conscious of this problem following their radical change from a foreign policy of non-intervention between world war I and world war II, to an acceptance of the obligation to provide world leadership after world war II.[1] Americans had to learn to rid themselves of the feeling of what Professor Gordon W. Allport of Harvard University calls 'privatism', a desire to separate themselves from their social and political context.[pc]

This is what Harry James Carman [1944], Dean of Columbia College for many years, and a strong protagonist of general education, says on the subject

---

1. The opening words of Norstrand's introduction to Ortega's Mission of the university are: "If we could solve the problem of general education, we could confidently strike any third world war off the calendar."

of American leadership: "Let us face the fact. Technologically we are the wonder of the world. But in the realm where circumstances demand virtue and political fitness -- high character, the attitude of objectivity, a disinterested understanding of the springs of human action -- we have not yet been truly successful. We will become successful only if we consciously set ourselves to training leaders in every part of our national life. We all know this -- perhaps not clearly or articulately, but still we know it. We as a nation do not really satisfy ourselves, not when we look at ourselves in our humble moments. And the reason for our sense of something wrong is the awareness we have that not enough of us are partaking of our communal life with knowledge, imagination, and morality -- as true leaders. What we are admitting to ourselves is that we do not have enough democracy, for democracy is measured by the number of its leaders. One way to increase our amount of democracy is to increase the number of our true leaders. It is thus no mere catchword that democracy depends upon the right education. It is the toughest, truest, most irreducible fact we can utter about democracy."

1.34. Leadership and underdeveloped nations.

The problem of assistance to underdeveloped nations is stressed time and again by British writers. Sir John Maud has said: "The rich [countries] ..... are becoming richer at a faster rate than the poor are becoming less poor." [Maud, 1960, p. 6] This is a central thought of Sir Charles Snow. It is technically possible, he says, to carry out the scientific revolution in India, Africa, South-east Asia, Latin America and the Middle East within fifty years. This could be a way out through the three menaces which stand in our way -- H-bomb war, over-population, and the gap between the rich and the poor. "There is no excuse for western man not to know this ..... This is one of the situations where the worst crime is innocence." [Snow, 1959, p. 43]

After capital, the second requirement is men: "that is, trained scientists and engineers adaptable enough to devote themselves to a foreign country's

industrialisation for at least ten years out of their lives. Here, unless and until the Americans and we educate ourselves both sensibly and imaginatively, the Russians have a clear edge. This is where their educational policy has already paid big dividends. They have such men and to spare if they are needed ..... These men, whom we don't yet possess, need to be trained not only in scientific but in human terms ..... If we don't do it, the Communist countries will in time ..... Education isn't the total solution to this problem: but without education the West can't even begin to cope. All the arrows point the same way. Closing the gap between our cultures is a necessity in the most abstract intellectual sense, as well as in the most practical. When those two senses have grown apart, then no society is going to be able to think with wisdom. For the sake of the intellectual life, for the sake of this country's special danger, for the sake of the western society living precariously rich among the poor, for the sake of the poor who needn't be poor if there is intelligence in the world, it is obligatory for us and the Americans and the whole West to look at our education with fresh eyes. This is one of the cases where we and the Americans have the most to learn from each other. We have each a good deal to learn from the Russians, if we are not too proud. Incidentally, the Russians have a good deal to learn from us, too."

"Isn't it time we began? The danger is, we have been brought up to think as though we had all the time in the world. We have very little time. So little that I dare not guess at it." [Ibid., ch. 4]

1.35. Leadership beyond one's profession.

The argument thus far of this section (1.3) may be summarized thus. A man who aspires to leadership within his profession should aim also to provide leadership to his community outside his profession. The most respected professions recognize this obligation on their members. Any statement of the aims of university education must go beyond mere intellectualism, to recognize the need to provide for community leadership as well as for professional competence.

From Ortega in Spain in 1930 to Griswold in

America and Snow in England in 1960, the view is authoritatively expressed that world peace may well depend on the production of leaders with a broader education than that of present-day specialists.

The question of the previous section (1.2) must now be repeated. What about those who will never achieve leadership status? If developing responsible leadership is an important objective of society in general and of universities in particular for the few, then society must ensure for the many, responsible 'followership' -- to coin a word. This is certainly the very least which universities should aim at for their graduates.

1.36 'Followership'.

It is a truism that democracy can function only with an educated electorate. What of those who will become followers only and never leaders, and they are in the majority even among university graduates? As voters they must be able to distinguish between the demagogue and the statesman. They must be able to distinguish the expert from the quack, and the better from the worse expert. [Harvard report, 1945, p. 54] They must not be taken in by false economic or political or psychological argument, by inaccurate history, or by second-rate art or literature. [Burchard, 1953, p. III 53] It need hardly be said that 'followership' in a democratic society does not mean docile acceptance of dictatorial leadership. It must mean responsible and thoroughgoing criticism and evaluation of leaders at local, provincial and national levels at all times. Democracy is more than a matter of casting votes. It is essentially a method of taking decisions after discussion. Voters too often follow their leaders uncritically. Their leaders should follow them in the sense that they should represent the responsible opinion which results from informed discussion. The division between leader and follower is indeed artificial, since many individuals are one at one time and on one level, and the other at different times and on other levels. "Democracies have the greater need of widely diffused general education, as compared with special training," said Lowell of Harvard in 1914, since "all men partake

of the character of rulers" and "ought to be trained for that duty." [Thomas, 1962, p. 55]

1.4. THE PURPOSES OF GENERAL EDUCATION FOR THE MAN -- AND THE WOMAN -- DURING LEISURE HOURS.

1.41. The proper use of leisure.

We are busy, said Aristotle, in order that we may enjoy leisure. The man who fulfils his obligations to his profession, and to his community, has the right to enjoy a rich leisure. Leisure for too many citizens consists of the vicarious excitements of mass spectatorship, providing no exercise for the growth of personality or for the development of social responsibility. "They grow older before they grow wiser, and die mentally before they die biologically," says Burchard.[pc]

Even those who do not approve of the practice of formal general education at the undergraduate level will agree, and often insist, that a man's leisure time should provide an opportunity for serious reading and thinking, in subjects outside his specialty. Robert M. Hutchins has said: "Leisure is that portion of the individual's time which he devotes to his moral and intellectual development and to participation in the life of the community of which he is a part." This is altogether too serious! Even Hutchins would no doubt agree that there should be time during leisure hours for bridge and for bowls also. It is however a very impoverished leisure time which does not make provision for viewing widely the whole spectrum of human knowledge from the fine arts and humanities through the social sciences to the biological and physical sciences. Will the specialist, who from a study of his own field and his own field only has 'learnt to learn', read as widely as the specialist who has at least had the windows, and preferably the doors, on to other subjects opened for him during his undergraduate years?

Education for life and education for livelihood are equally significant; we must educate for the job of life, as well as for the job in life. An education which equips a man for his working hours only has been sadly defective. Admittedly many influences outside of

school and college educate almost as much as the formal work of the class-room and lecture-room, but it is not enough to leave this kind of education entirely to the haphazard influences of home and friends, religious and social organizations, and to the press, television, radio and cinema.

1.42. Leisure and the arts.

It may appear that the emphasis above has been solely on intellectual values. Conant says, in the introduction to the Harvard report [1945, p. ix] that education must teach the meaning of right and wrong not only in terms of mathematics, but also in terms of moral values. But however important a sense of intellectual truth and moral value and social obligation may be, it is a barren spirit who has no sense of aesthetic values. The man entirely unacquainted with painting and sculpture, literature and drama, music and ballet is the poorer for it. It may well be that no amount of exposure to these fields will produce a keen appreciation of all of them, but an educated man would wish to feel that he has an understanding of some and a knowledge of most. Here more than anywhere else, we often see 'the petulance of one who is learned in his own special line'. A specialist who would be horrified at uninformed criticism in his own field may not hesitate to enter an art gallery, and view one year's work in one hour, and dismiss it in one minute as incompetent or childish. To appreciate the arts and to be able to judge them responsibly, or at least to be humble enough to refrain from judging them irresponsibly, is something a good education should give a man. Admittedly he may not be mature enough, nor have had opportunity enough, to pursue these interests extensively while he is a student, but if he does not start then he may never in the whole of his life be able to do so.

1.43. Stretching the mind.

It is as well for general education to make demands a little ahead of a student's level of maturity. Just as specialist education is demanding intellectually, so general education should continuously prove to be 'stretching' mentally. Slower minds should

know the topics which have been the prime preoccupation of maturer minds, and have some idea, however vague, of what has been thought about them. A time will come when these matters will not seem so recondite. [Harvard report, 1945, pp. 113, 114] The authors of this report recommended a humanities course called 'Great texts of literature'. "Some doubt may be felt whether the heights of these books may not be beyond the reach of large masses of ..... students. But they have always been admittedly beyond the reach of the vast majority of even their best readers. That has not made them less educative. And indeed the chief reason for the course, and the best argument for experimenting with it, is that too many students today have too little contact with thoughts which are beyond them (apart from the specialties) and that many are in fact passionately if inarticulately hungry for greatness in the common cares of man." [Ibid., p. 207]

1.44. Time for leisure.

Griswold has some valuable comment to make on the matter of leisure. During the past century, he says, the average working week of our industrial and white collar workers has shrunk from seventy to less than forty hours. He pleads for "education, especially liberal education, whose aim is expanding the individual's capacity and desire for self-education; for seeking and finding meaning, truth and enjoyment in all he does. For centuries this type of education, redefined and re-interpreted in terms appropriate to its age, has been sought after as the education of the ideal citizen. But because the condition for receiving it in the past was leisure, and this in turn was a condition of wealth and privilege, the educational opportunity that depended upon it was limited to the few. Now we stand on the threshold of an age that will bring leisure to all of us, more leisure than all the aristocracies of history, all the patrons of art, all the captains of industry and kings of enterprise ever had at their disposal. With this leisure the opportunity to educate ourselves up to the limits of our own individual capacities will be brought within the range of us all.

What shall we do with this great opportunity? In the answers that we give to this question the fate of American civilization will unfold."[1]

1.45. Adult education.

He makes clear however that this opportunity, this privilege carries with it a responsibility. "Along with the individual freedom we guarantee to our citizens goes the expectation that they will use that freedom to better themselves and thus better society. We look to their individual self-improvement as the only certain means of ensuring the security and welfare of the state. The purpose of liberal education is to expand to the limit the individual's capacity -- and desire -- for self-improvement, for seeking and finding enjoyment and meaning in everything he does. Thus does liberal education serve the purpose of democracy." [Griswold, 1959, p. vi]

The adult education movement, very strong in America, is based on the need for continuing education, and McGrath has provided an interesting analysis of this. [McGrath, 1958, pp. 20 - 25] Suffice it to say here that two points arise. Firstly, adult education is a valuable, and indeed indispensable, supplement to general education. But it is no substitute: indeed it is most profitable when built on a foundation of undergraduate general education. Further reference to other 'alternatives', wrongly put forward often as substitutes, is made later in this dissertation. Secondly, some critics of general education argue that it should be completed in secondary school, and some say it should be postponed until the completion of university and become part of adult education. This point too will be taken up later. (See section 8.3)

1.46. The woman in the home.

A conclusion of the discussion of the purpose of

---

1. GRISWOLD, A. Whitney, Life International, vol. 28, No. 2, 1st February, 1960, p. 152. In the same issue of Life (p. 151), JACOBS, Devereux, says that "today U.S. factories are making leisure faster than we are developing intelligent uses for it." Again, in the same issue (p. 150), GRUEN, Victor, reminds that "our leisure is eaten up by our having to travel great distances on the hideous approaches to our sprawling cities."

general education relative to leisure must stress the importance of general education for women. If the husband, the father, is, as so often happens, a specialist pure and simple, it is the wife, the mother, who must provide the cultural background in the home. One of the alternatives which critics who wish to escape the challenge of general education put forward is the cultural background of a good home. This too may be a good supplement: it is no adequate alternative: but supplement or alternative, it is often the wife, the mother, who must provide it, if it is to be provided at all.

1.5. PURPOSES OF GENERAL EDUCATION: SOME MISCELLANEOUS PURPOSES -- AND SOME RESULTS.

1.51. Variety in American education.

How far is general education necessitated by the special circumstances of American education? Arguments for general education may well be valid to a greater or lesser degree for all countries: are there special reasons why general education is more needed in America than elsewhere?

There is considerable variation in secondary education in America, state by state, city by city, and sometimes school by school within a city. One purpose of general education is to provide some common foundation on which to base the undergraduate curriculum. Dean Burchard says: "The standards of the secondary schools are enormously variant both as to quality and as to content. There is almost no common knowledge on which the college instructor can rely." [Burchard, 1953, p. I 35] This diversity of preparation for university is perhaps inevitable with so large a degree of local control of education. In 1959, there were 49,477 school boards in America with 198,108 members, having considerable powers over elementary and high schools. [Time Magazine, 14th September, 1959][1] Few states really control curricula, except New York with its 175-year-old Board of Regents. Throughout America, on the average, states carry 40% of the cost

---

1. "Pressures are inevitably brought upon the school systems to reduce standards still farther so that mother's Jack will not turn out to have been a dull boy." [Burchard, 1953, I 35]

of school education, but local governments find 57%. State contributions vary considerably. 1945 figures [Harvard Report, p. 16] will illustrate this. "Mississippi ..... is able to spend only a fifth as much per pupil as New York and to pay its teachers and principals an average salary of 559 dollars against New York's 2604 dollars. Ten states annually spend less than 50 dollars a pupil, whereas eight spend more than 100 dollars." (These figures have been increased since 1945: it is the comparison between states, however, which is of importance here). In spite of these disparaties, federal aid is resisted with suspicion of probable domination from Washington, and fear of loss of state rights.

American universities and colleges, and the schools preparing students for them, do not aim at the intellectually élite only as is the case in England. One of the major social forces in America is belief in "the basic principle that all youth should have the opportunity to develop their own peculiar abilities to the fullest, whatever these qualities may be, and regardless of the social, economic and racial origin of their possessor. This policy, impossible of practical realization in any society except one like the United States with its unparalleled surplus of wealth and manpower, has each year brought additional thousands of young people to the nation's campuses. In the aggregate these students have represented an ever more varied mosaic of abilities, interests and vocational objectives. Hence new programs have been devised to suit their differing needs." [McGrath, 1958, pp. 13, 14]

The best-known American universities are highly selective and may reject as many as eighty per cent of applicants. Thus they are able to specify closely the educational admission requirements which schools must observe. State universities, however, must by law usually admit all high school graduates. "All you have to do in most [state universities] is to breathe to gain admission."[1] This statement is no doubt exaggerated, and state universities weed out

---

1. MARSON, Philip, on retiring from Boston Latin School after teaching for 31 years, Time, 10th March, 1958.

during the freshman year those students with no chance of success, but wide variations are once again apparent.

In 1870 three-fourths of those who attended high school went on to college, and so the graduating classes in high schools formed a homogeneous group. But in 1945 three-fourths of high school students planned to go straight to work, [Harvard report, 1945, pp. 7, 8] into over two thousand different occupations. Even the one-fourth going on to college form a heterogeneous group.

Thus, the variety in quality and in content of secondary education, and the variety in abilities, interests and vocational objectives of school children make general education very necessary in America. It may be remembered also that immigrants poured into the United States during the first quarter of this century. The number of immigrants and their children reached a peak of 38,000,000. In 1920, it was 35,000,000, exactly a third of the total population at the time of 105,000,000. [Griswold, 1959, p. 24]

1.52. Wiser choice of undergraduate curricula.

One result -- if not an explicit purpose -- of general education is the possibility of following a wide curriculum before choosing a field of specialization, and then a career. At Columbia University there are in the College advisers about programs preparatory to architecture, business, engineering, the humanities, journalism, law, library service, medicine, and dentistry. All without exception expressed the view that students often tended to choose subjects and careers for sheer ignorance of any alternative, before any experience of general education.[pc] Changes were frequently made afterwards. Columbia College students often come from lower middle class families, and they are intent on a career or profession leading to social prestige and financial advantage. Such considerations may well be placed above interest in and ability for other subjects: indeed only a general education program brings acquaintance with alternative fields.

At the University College of North Staffordshire

in England at Keele "where no student is permitted to make his final choice until after the Foundation Year [of general studies], 64.7 per cent of the first year students in the 1958/59 session changed from their original intention in regard to one of their required two principal subjects, and 10.3% changed their mind about both." [Linstead Report, 1961, p. 60] At Keele a student may express a preference for history over Latin, for example, at the beginning of his first year for no better reason than that "I like history because I had an interesting teacher at school: my Latin teacher was bad."[pc] In a recent Harvard class half the students on entry expected to concentrate on natural sciences, but only one-quarter did so. The social sciences, on the other hand, drew only one-fifth of the class upon entrance, but claimed better than two-fifths by graduation. [Harvard, 1960 Aug., p. 4] Such high percentages of change would be impossible in Britain (except at Keele) and in South Africa, where movement from one area to another (unless at the cost of an extra year) is extremely difficult.

The Linstead report, from which the above figures are taken, in spite of its luke-warm conclusions about general education in Britain, recognizes that few pupils at the end of their school life can know what career will suit them best. "It is ..... important that doors are not closed too soon: that the system, both school and university, is reasonably flexible between science or one branch of engineering or another ..... No choice, however tentative, can be a real choice if it is not informed. Until a pupil has had an opportunity to study several subjects in sufficient depth to have some appreciation of their nature and import, he ought not to be asked to choose between them even though, when he comes to make the choice, he will normally have the advice of masters and parents." [Linstead report, 1961, p. 16]

In the University of Natal from 1949 to 1957, the following percentages of entering students in certain faculties obtained their degrees: science 44%, engineering 42%, agriculture 48%, arts 65%. Many factors other than unwise choice of a course through lack of a general education program contribute to these

distressing figures. Certainly closer acquaintance with a wider variety of subjects in the first year and later would have led to wiser choices by the failures, and perhaps even by the successful students too, not only of faculty and career, but of major subjects within a faculty. [Black, 1962][1]

1.53. General education and the prestige of a profession.

McGrath analyses the changing of professional education historically into five stages: the apprentice stage, the proprietary school stage, the university school stage, the preprofessional requirement stage, and the general education stage. [McGrath, 1959a, pp. 28 - 34] He uses medicine as an example. Until late in the nineteenth century an apprenticeship, with no formal university or college education, was the customary training for physicians. (A similar system existed in law, and still does in some states. The same arrangement prevailed in the preparation of members of the clergy). Then came the proprietary school stage, when physicians banded themselves together in teaching groups, and obtained legal authorization for the granting of degrees. This stage, typical of the second half of the nineteenth century, was one of 'joint-stock corporations which furnished the least possible tuition for the highest possible price': sometimes the curriculum covered only a year or two of a few weeks each following little more than a primary education. The monumental Flexner Report of 1910 helped markedly in the rapid extinction of the proprietary colleges, and the university school stage was reached with four years of study for a medical degree following a one-year pre-medical requirement which included prescribed studies in the sciences. The 'preprofessional requirement' stage was at first limited to the sciences basic to medicine for one year, and then extended to include humanities and social sciences over three or four years. In the 1958 entering class, 71.1% of students had no less than a bachelor's degree, and many students held more than a bachelor's degree. This will be

1. A study of 15,256 university students in Britain admitted in October, 1952 shows the following successes in four years: arts 84.1%, science 80.5%, technology 69.4%. Readmitted 2.7%, left for reasons other than academic failure 5.4%, academic failure 11.3%. [UGC, 1959, p. 21] Total successful by the end of the 1955-56 session: 80.6%

discussed more fully later. The point to be made here is that medical doctors in America recognize that a broad general education is essential if they are to continue to enjoy their established position of preferred social status and leadership. The experience of the older professions "clearly shows that the social status and the general competence of their members have been enhanced by the adoption of educational programs which emphasize broad principles and a general education for the varied responsibilities of life. Contrary to a view among members of the newer professional groups, they will not gain prestige and a separate identity by multiplying units of highly specialized, technical instruction of limited applicability. Curricula in some professional schools, composed of narrow, highly specialized and technical subject matter, could be improved by a reduction of such courses, by an increase in the liberal arts and sciences, and by offering core courses in the professional field stressing principles rather than details of fact and technique. If such a reorientation occurs, graduates will not only fulfill their professional responsibilities more effectually; they will also more fully understand and discharge their duties as citizens and they will live a richer personal life. The profession as a whole will gain the enhanced social and economic status and greater opportunity for civic leadership which have invariably accompanied the raising of educational standards." [Ibid., p. 34]

This is a very live issue in the 1960's for the profession of pharmacy. Since 1960 all American schools of pharmacy have increased the length of their courses to five years. At the height of the debate over the five-year curriculum, the Secretary of the American Pharmaceutical Association urged members of the Association of American Colleges of Pharmacy to take full cognizance of the effect on pharmacy's prestige if they refused to adopt an expanded curriculum providing additional liberal studies. Dean H.G. Hewitt, President of the American Association of Colleges of Pharmacy for 1957, suggested that: "In the development of an appreciation of the arts and humanities, we can aid in breaking down the provincialism that has long developed in our trainees a high incidence of the inferiority

complex in the presence of college graduates." [Newcomer, 1960, pp. 33 - 35]

The fact that this is a live issue in the 1960's does not mean that it is an issue which has only recently been raised. "The late nineteenth and early twentieth centuries found most of pharmacy's efforts at improvement paralleling medicine's attempts to elevate the quality and quantity of instruction in the sciences. Then, during the second and third decades of this century, medicine rapidly extended its preprofessional requirements to accommodate more liberal studies. Following this general pattern of evolution, since 1945, pharmacy has also concentrated its efforts on the task of augmenting the liberal component of its curriculum. Throughout these developments there has been a pronounced overtone of feeling that the status of pharmacy would be directly influenced by the efforts of the profession to lengthen and broaden its curriculum.[1]

1.6. WHAT GENERAL EDUCATION IS NOT.

It is necessary to make some negative comments here. There is danger in defining general education in too grandiose a fashion. Harry James Carman says that the aim of producing through general education a'whole man', a 'completely rounded person', goes too far. Only a good life in a good society can do that. He believes the training of leaders should be the aim of general education.[2]

At a first lecture of the year at M.I.T., freshmen were asked what they thought the aim of general education was. The majority replied: "The well-rounded man." The lecturer answered: "Not in one course of 40 hours. The most I aim to do is to increase your desire to read and the range of your reading."

To 'oversell' general education prevents "the humanistic-social studies from accomplishing those things which they are actually capable of doing." There is equally a danger of defining general education too

---

1. In spite of the fact that the need for general education was advanced as one of the primary justifications for a longer course of pharmaceutical study, the majority of colleges can hardly claim that they have in fact used the fifth year for this purpose. [Newcomer, 1960, p. 113]
2. See pages 24 and 25.

narrowly. The 'finishing school' concept of general education sees it as a sort of 'cultural veneer' with literature and the arts being merely 'conversation pieces' -- a sort of Dale Carnegie tool to enable one to 'get along with people'. The following extracts provide an amusing statement of those two opposite views. "Carried to extremes, this attitude leads to the expectation expressed on one campus that the humanities and social sciences should inculcate good manners and teach students not to walk four abreast on campus walks, nor to attend classes without neckties." On the other hand, "implied in some of the glowing statements the committee has examined is a faith that a few courses in the humanities and social sciences can provide health and emotional adjustment, personal and social success, clarity of thought, moral integrity, aesthetic sensitivity, professional vision, and in general a kind of serenity and wisdom we had thought was reserved for Providence alone. The objectives which some schools profess to accomplish in courses involving twenty-one to twenty-four semester hours would appear to rival, or even outstrip, what might be expected from a full four-year liberal arts program." [ASEE, 1956, pp. 5, 55, 56]

The authors of the Harvard report [p. 225] make clear that general education is not something to be got over with, "educational bric-a-brac, hurdles in performance for the student." Neither is it something formless -- that is to say, the taking of one course after another; nor something negative -- merely the study of what is not in the field of concentration. [Ibid., p. 51]

The opposite conclusion is reached by the authors of the Linstead report, [p. 78] namely that "the less direct the vocational relevance of [a] subject, the weaker appears to be the argument for its inclusion in first-degree courses", a quite extraordinary statement of the content, if not the purpose, of general education. The student himself, in fact, "should make the running in the development of his general education." (See p.194 for Venables on 'relevance.')

What positive thought emerges from these negative statements? The trustees of the Carnegie Foundation

for the Advancement of Teaching ask what are the goals of a liberal education, and reply that a systematic statement "must strike the reader as more than a little Utopian. When we assert that liberal education seeks to 'prepare the student for life' or 'to enable him to understand the world he lives in' we are being, unwittingly, rather pretentious. The goals of a liberal education are the goals of a lifetime, and few men achieve them. What one hopes to do in the course of a liberal education is to set the student well and firmly in pursuit of these goals ..... The purpose of a liberal education is to start the student on the road to maturity in the broadest sense of that word. Though it cannot possibly complete the job of 'preparing him for life' it can initiate the sort of personal growth which may eventually result in some measure of maturity. And it is clear that the sort of wisdom, judgment, and perspective which a liberal education should provide the individual, should make him better able to face the daily decisions of life -- in his work, in his own family, in his community and in the world at large." [Carnegie, 1955, pp. 5 - 7]

1.7. A WIDER VIEW OF THE PURPOSES OF GENERAL EDUCATION.

It has just been noted that the authors of the Harvard report state that general education is not merely the study of what is not in the field of concentration. This dissertation has, it must be admitted, described the content of general education thus far virtually as a study of subjects outside of the student's specialty. The purposes of general education ultimately are very much wider.[1]

McGrath [1959a, pp. 18 - 25] lists three types of abilities and traits of personality which a liberal education might be expected to engender, and these are briefly summarized here:

1. To provide essential knowledge: but he concludes his discussion with the insistence of Cardinal Newman that 'the end of a liberal education is not mere knowledge'. It must include at least 'the system of vital ideas of a period', even if only an introduction to them is possible during undergraduate years.

---

1. See ch. 9.

2. To cultivate intellectual skills: the capacity to think logically and clearly, the ability to organize one's thoughts on any subject on which essential facts are possessed or obtainable. Since the methodologies of the humanities, the social sciences and the natural sciences differ, each must be studied. The ability to think must be accompanied by the ability to express oneself -- in words, in numbers and in artistic media.

3. To cultivate traits of personality and character: the intellectual curiosity and intellectual humility of the tolerant, temperate, balanced man of maturity and magnanimity, whose rational processes are not at the mercy of his fears and prejudices.

The Harvard report [pp. 64 - 73] lists certain traits and characteristics of mind, certain abilities which should be retained above all others through the means of general education. They are: to think effectively, to communicate thought, to make relevant judgments, to discriminate among values.[1]

The authors of the British report "Liberal education in a technical age" say: "We regard a liberal education as one which includes a training in the use of language, in the handling of ideas, in recognising relationships, and in establishing values as touch-stones by which questions of taste and morals are to be tested." [Wood Report, 1955, p. 12]

The similarity of these three statements, made at different times, and in different places, merits analysis. The aims of education itself could hardly be stated without including these objectives. Where do the aims of general education end, and the aims of education in general begin? A return is made to these points in chapter 9.

---

1. See pages 393 and 328.

CHAPTER 2.

THE CONTENT OF GENERAL EDUCATION AT VARIOUS AMERICAN UNIVERSITIES.

2.1. INTRODUCTORY.

Descriptions follow of the general education programs at various American universities.

Frequently throughout these pages, reference will be made to the humanities, the social sciences, and the natural sciences. The Harvard University division of these areas into departments will be followed. [Harvard, 1962, July, p. 27] It will be noticed that some departments fall under more than one area.

2.11. Area of natural sciences.

Anthropology, applied mathematics and applied physics, architectural sciences, astronomy, biology, chemistry, engineering, geology, mathematics, meteorology and oceanography, mineralogy, paleontology, physics, psychology, statistics, and general education courses in natural sciences.

2.12. Area of social sciences.

Anthropology, economics, government, history, history of religions, history of science and learning, social relations, statistics, and general education courses in social sciences.

2.13. Area of humanities.

Architectural sciences, Celtic languages and literatures, classics, comparative literature, English and American literature, Far Eastern languages, fine arts, Germanic languages and literatures, linguistics, music, Near Eastern languages and literatures, philosophy, romance languages and literatures, Sanskrit and Indian studies, Slavic languages and literatures, and general education courses in humanities.

2.14. It is debatable whether history should be placed with the humanities or with the social sciences. Dean Burchard [1961, p. 5] gives up the struggle and in one table of statistics lists humanities, social sciences, and -- separately -- history.

2.2. HARVARD COLLEGE.

A large percentage of Harvard College students after four years proceed further to post-graduate study,[1] and students will 'concentrate', to use the Harvard term, in the field in which they propose to specialize after graduation. To ensure breadth, as well as depth, students must also 'distribute' their courses according to the requirements laid down for general education. Even in engineering, for which a professional qualification may in many American universities be obtained by undergraduate study in four years, at Harvard a fifth year is needed. [Harvard, 1960, September, p. 22][2] Harvard College's primary concern is the liberal education of undergraduates, and not pre-medical, or pre-law or pre-business training. The university provides in its many schools for professional and post-graduate study.[3]

2.21. Concentration and distribution.

Each undergraduate is required to take during his four years a minimum of sixteen courses plus 'General education A' (a half-course in English composition in the freshman year). A reading knowledge of one foreign language is also required.

At the beginning of his sophomore year, each student is required to specialize to some degree by choosing a field of concentration (or 'major'). There are thirty-two fields of concentration, and it is possible to combine certain pairs of fields.

President Lowell once remarked that 'every educated man should know a little of everything, and something well'. Distribution induces a general

---

1. 'Graduate study' in America means the same as 'post-graduate study' in South Africa.
2. The A.B. after four years may be supplemented by the S.B., a second undergraduate degree, after one or two more years of study. This degree is accredited by the Engineers' Council for Professional Development. The A.B. (with an outstanding academic record), not the S.B., is a requirement for admission to graduate school.
3. ..... in the Medical School, Divinity School, Law School, Design School, Graduate School of Arts and Sciences, and the Schools of Business Administration, Education, Public Health, Design (Architecture, Landscape Architecture, City and Regional Planning) and Public Administration.

education which will provide width of understanding, and a common, unifying intellectual experience for all students. During his first two years in Harvard College each student is required ordinarily to take three general education courses, one from each of the three areas. During his last two years he is required to take at least three additional courses outside his field of concentration, chosen either from the advanced or upper-level general education courses or from suitable departmental courses. [Harvard, 1962, August, pp. 26 - 28] Not more than one full course or two half-courses may be in the area in which his department of concentration lies. [Harvard, 1962, July, p. 11] These second-group courses are intended to form no systematic pattern, and, in fact, they differ greatly from each other in method and procedure, as well as in subject matter. They are not offered as a comprehensive program of distribution courses, but rather as subjects and as types of courses believed to be of value to the man and the citizen, though they may be unrelated to his field of specialization. [Ibid., p. 7]

Students may substitute for the elementary general education course in the natural sciences, two full courses or four half-courses given by scientific departments. [Ibid., pp. 10, 11] This is reflected in the lower figures for elementary natural sciences in the table which follows.

In the fall and spring terms of 1958/59 and 1959/60 the totals of Harvard and Radcliffe students taking general education courses were as follows:[1]

	1958/9 Fall	1959/60 Fall	1958/59 Spring	1959/60 Spring
General education A	1445	1475	1405	1444
Humanities				
elementary	1565	1366	1554	1353
second-group	378	346	287	433
Natural sciences				
elementary	1011	921	960	885
second-group	47	95	275	370
Social sciences				
elementary	1296	1468	1256	1427
second-group	440	404	513	732

The possibility of choosing second-group courses from departmental offerings shows up in the fact that 'second-group' figures are lower than 'elementary'

1. Personal enquiry.

figures.

Exemption from the required elementary general education courses is almost never given. Exemptions or substitutions with respect to second-group courses may be permitted in cases of dire necessity. [Harvard, 1962, April, pp. 10, 11]

2.22. Description of some general education courses.

At this early stage of a discussion on the content of general education, fairly full descriptions will be given.

The courses provided in general education vary from year to year. For 1962/63 and 1963/64 the following courses are listed, [Harvard, 1962, July, pp. 13 - 17] and a brief description is given of six.

The humanities -- elementary courses.

Forms of literature -- I drama and history, II autobiography and fiction.

Ideas of man and the world in western thought.

Introduction to literature.

The experience of the drama.

Epic and drama given by Professor John H. Finley, chairman of the Committee on General Education: The course treats continuities and differences between the classical and modern culture as reflected in two literary forms. During the first half-year the following works are read: the Iliad, the Odyssey, the Aeneid, the Divine Comedy, and Paradise Lost. During the second half-year, representative plays are read by Sophocles, Molière, Ben Jonson, Ibsen, Chekhov, and Ionescu.

The humanities -- second-group courses.

Classics of the Far East.

Types of art: the representation of nature in European and Asiatic art.

Thought and literature of the Renaissance.

Art in the culture of ancient Greece.

Introduction to the New Testament.

The narrative art.

The enlightenment.

The classical tradition in western art.

Classics of the Jewish tradition.

Ideology in contemporary European fiction, a half-course given by Professor H.S. Hughes: The course provides a study of ideological themes in novels of the past half century in France, Germany, Italy, England, and Russia.

The subjects treated will include Marxism, Fascism, and the opposition to it, and the psychological repercussions of the First World War and the Spanish Civil War. The analysis will be directed both at the ideological element in literature and at the ways in which these new themes have changed the character of the novel itself. The reading will include: Martin du Gard, Jean Barois; Remarque, All quiet on the western front; Romains, Verdun; Sholokhov, And quiet flows the Don; Hesse, Steppenwolf; Forster, A passage to India; Moravia, The conformist; Pratolini, A tale of poor lovers; Malraux, Man's hope; Beauvoir, The mandarins; Dudintsev, Not by bread alone. This is a discussion course limited to fifteen students. Admission will be based on previous application, with preference given to seniors.

The natural sciences -- elementary courses.

The enterprise of science.

The nature of living things.

The light, the atom, and the stars.

The earth -- past and present.

Foundations of modern physical science, given by Professor G. Holton: This course is designed for students who, regardless of their prospective field of concentration, want a thorough introduction to the key concepts and theories of physical science, principally physics and some part of astronomy and chemistry. A primary aim is to help the student develop the intellectual tools for his orientation in an age where science has become a dominant cultural force. Physical science will therefore be studied both as a body of knowledge and as a process of investigation. The main topics will be: Galilean and Newtonian mechanics; dynamics of the solar system; conservation of mass and energy; origins of the atomic theory in physics and chemistry; waves and fields; quantum theory of light and matter; the nature of elementary particles; relativity theory. Reading assignments deal with the interaction between science and philosophy, and with recent developments in physics. Without requiring special previous training in mathematics, this course will develop elements of the calculus as tools for analyzing physical problems. Students already having some knowledge of the calculus may apply for a conference in which calculus is used extensively. A limited number of students will be permitted to substitute a series of laboratory experiments for one of the two essay assignments. Prerequisite: good background in high-school mathematics, not necessarily including the calculus. Some knowledge of high-school chemistry or physics is desirable but not required.

The natural sciences -- second-group courses.

Human behaviour.

Modern physics and its historical and philosophical background.

Advanced topics in the natural sciences selected with special reference to secondary school teaching.

Mathematics for non-mathematicians, a half-course given by Dr. Newcomb Greenleaf: This is a course for the student who, while not planning to pursue a program of study in mathematics, nevertheless desires to acquaint himself with the history, purposes, and some of the methods of mathematical thought of today. The development of mathematics in the latter part of the nineteenth century and the striking progress in the present century will be illustrated by a choice of topics whose understanding lies within the reach of the student with the usual high-school background. Some subjects which might be treated are the following: Russell's Paradox, the cardinal and ordinal numbers, the axiomatization of geometry, gambling and the St. Petersburg Paradox, groups and fields, braids.

The social sciences -- elementary courses.

Introduction to the development of western civilization.

Western thought and institutions.

Ideas and institutions in the history of western Europe.

Freedom and authority in the modern world.

Psychological conceptions of man given by Professors Bruner and G.A. Miller: This course examines the origins of modern psychological conceptions of man, tracing the intellectual sources that come together to create the modern views of man and his psychological functioning. The place of man in the phylogenetic scale will then be examined to assess the dual role of biological and cultural factors in the determination of human behaviour. This will be supplemented by an analysis of the development of human behaviour in the child, again assessing the joint operation of biological and cultural factors -- notably language. The final portion of the course will be given over to an intensive exploration of the phenomena of perception, memory, and thought, to illustrate the interaction of human capacity and cultural heritage. The enrolment is limited to 300 members.

The social sciences -- second-group courses.

History of Far Eastern civilization.

War.

The civilization of Germany.

Value and explanation in social theory.

Introduction to the civilzation of India.

Democratic theory and its critics.

Modern science.

Intellectual dialogue in eighteenth century America.

History and civilization of the Middle East.

The legal pioneers.

The civilization of France.

The human life cycle.

Character and social structure in America by Professor Riesman: An attempt is made in this course to relate the contributions of sociology, anthropology, and psychology to those of history, economics, and political science in the study of American character and society. The course alternates between a focus on methods and approaches, and a focus on substantive themes, such as equality, mobility, the role of education, and Utopian thinking. Changes in social character are examined from the time of Alexis de Tocqueville's visit in the 1830's to the present, in terms of explicit and implicit values, feelings of power and helplessness, intensity of personal relations, and styles of perception, consumption, and expression. The enrolment is limited to 250 members.

Finally, a fuller description is given of two lectures personally attended, from courses on the natural sciences for students of the arts, one by Professor Phillipe E. le Corbeiller on 'The physical sciences in a technical civilization', and one by Associate Professor Leonard K. Nash on 'The process of scientific research'. Both were primarily for freshmen and sophomores.

The first course "is designed for students having little scientific preparation," and covers in the first term "aspects of physics, chemistry and geology.... which are involved in the production and transmission of power," and in the second term "(a) falling bodies, Newton's laws, circular motion, the solar system, universal gravitation; (b) electronic physics, atomic structure and the periodic table, elements of nuclear physics." Professor le Corbeiller's lecture was entitled 'Copernicus to Newton', but it ranged back to a discussion of Plato's Timaeus and the approach of Archimedes to the calculus. One who had read the Principia Mathematica, with its heavy geometric treatment, was well able to show his students the sheer excitement of Newton's more simplified and more powerful

methods of analysis through his development of the calculus, and of Kepler's abandonment of his hundreds of epicycles for his three simple and effective empirical laws. The lecture was salted with historical and biographical detail, and Professor le Corbeiller made the romance of fitting the problems together as interesting as a novel. [Cohen, 1952, p. 133]

The second lecture was part of the course entitled 'The process of scientific research'. "The focus of attention will be on the art of scientific research ..... Intensive consideration will be given to the closely woven fabric of experiments and hypotheses of facts and ideas, that has always characterised productive scientific research. Consideration will also be extended to the gradual emergence of science as an important social activity, and to the complex social interaction of science with technology and philosophy." Among topics included in the course are "..... Lavoisier and the chemical revolution, early studies of photo-synthesis, ... the architecture of molecules, Pasteur's study of fermentation and spontaneous generation, and the rise of the dye and drug industry." The lecture attended was on the coal tar chemical industry, and necessitated a knowledge of organic chemistry, which is seldom included in South African schools. The lecture ranged over not only organic chemistry and technology, but also biology, medicine, history and biography. The lecturer had some good things to say about scientific research, and about the over-simplification of history arising from the 'great man' approach; he discussed whether 'accidental' scientific discoveries were a matter of chance or rather of a prepared mind, good academic lineage and good laboratory opportunities; and he described how "industry followed the discoveries of chemists who were monkeying around for the hell of it." Subsequent lectures were to deal with perfume, saccharine, explosives and antibiotics! Professor Nash did not so much cut across the boundaries of many subjects, as ignore them. He then set his students a difficult problem in organic chemistry, and it should be remembered that they were not chemistry students. [Ibid., p. 97]

2.23. The place of English in general education programs.

This all-important subject will be fully discussed later.[1] It need hardly be stressed here that what is said about English in English-speaking countries refers equally to Afrikaans or English in South Africa, French or English in Canada, Dutch in Holland, and so on.

In the Harvard report the original Committee on the Objectives of a General Education in speaking of "the abilities which should be sought above all others," specified "to think effectively, to communicate thought, to make relevant judgments, to discriminate among values." And it went on to say: "They are not in practice separable and not to be developed in isolation. Nor can they even be analyzed in separation. Each is an indispensable coexistent function of a growing mind." It accordingly recommended that in place of English A (the established course in composition) a new procedure be substituted which would serve to connect the teaching of composition more directly with the introductory courses in general education. In this connection, the committee said: "Training in composition should not be associated with the English department only. It should be functional to the curriculum, a significant part of the student's college experience. It should, so far as is feasible, be associated with training in general education rather than with a single course or department."

After investigation and debate, the Faculty of Arts and Sciences voted to discontinue English A beginning with 1951/52 and to establish in its place a new course, 'General education A', similar to that which had been recommended in the report. This course is compulsory for all freshmen, over and above the other requirements. In addition to dealing with the matters characteristic of the normal freshman composition course, General education A presents the student with a series of projects designed to illustrate concretely the kinds of writing and thinking peculiar to the humanities, the social sciences, and the natural sciences.

The course trains students to write sound and

---

1. See page 236.

orderly exposition by dealing directly with ways of thinking about particular kinds of problems and with the connection between such ways of thinking and various forms of expression. It should be noted that, in addition to the essays they write for this course, students regularly present four or five longer essays in each of the other general education courses they take. The combined amounts of writing for these courses are easily equal to, and generally more extensive than, the amount required in the full courses in English composition characteristic of most colleges. The staff of 'General education A' will give individual assistance, as requested, in preparing these longer essays and will also deal in class with some problems particularly relevant to them, notably those of organization and documentation.

Good English is required both in spoken and in written work not only in English courses but in all courses. Any student whose work is unsatisfactory in English, whether in the details of spelling or grammar or in the larger matter of clear expression of ideas, may be required to receive special instruction intended to correct these deficiencies. Such special work will in no case be counted as a course for the degree. [Harvard, 1962, July, pp. 6, 7, 13]

2.24. The provision of general education courses in the natural sciences.

This is a more difficult problem than the provision of general education courses in the humanities and the social sciences.

The case for more general education usually finds a sympathetic ear when a professor is asked whether students in other areas should know more about his area, and especially about his department or subject. He may plead 'lack of time', when asked to arrange for his students to make room in their curricula for general education in other areas. But in the natural sciences many professors show little interest in general education for students even of other areas. Unless a subject is studied thoroughly, with a good mathematical foundation, and adequate time for laboratory work it should not be attempted at all, say the unconverted.

For them general education science is pseudo-science.[1]

Medical schools require undergraduates to complete a good deal of science, more than is obtained in general education courses: but they do not wish the time on general education courses in the humanities and social sciences to be reduced. Time must therefore be found for regular science courses, not general education science courses. Even Harvard College has had to bow to these pressures, and allow two regular departmental courses to bring exemption from the one elementary general education course.[2]

The freshman physical science course.

Professor Gerald Holton gives the basic course on 'Foundations of modern physical science' referred to above. Even science concentrators find it valuable with its stress on the unity underlying related sciences. The centre of the course lies in physics, but the rather arbitrary division of physics into rigid categories (e.g. mechanics, heat, etc.) is discarded. The historical and philosophical development of science suggests the organization and unification of the material. This allows well-chosen references to the original work of great scientists to provide the excitement 'of looking over the shoulder of the originator at his work'. The main strength of any science course, it is recognized, lies in the scientific subject-matter content, and the historical approach is abandoned if it does not clarify scientific content. No attempt is made at encyclopaedic coverage. Related key topics are studied. A continuously developing story can be told from Galileo's law of free-fall to thermo-nuclear reactions. Many classical items of older preprofessional physics courses are omitted such as photometry and lens aberrations.

To this is added the interrelationships of philosophical and scientific work, the social effects

---

1. Personal conversation with Dean John Munro, Dean of Harvard College.
2. Personal conversation with Professor Kenneth B. Murdock, Chairman of the Committee on General Education from 1955/56 to 1959/60.

of science and technology, and the organization of science itself.[1] Fuller details appear in [Haun, 1960, pp. 121 - 129].

The freshman biology course.

The basic course in biology, 'The nature of living things' is given by internationally famous Professor Wald. This course introduces to modern biology both general students and those going on in science. No previous training in science is assumed, though secondary-school courses in any of the sciences are desirable. The main theme of the course is that life in all its manifestations is part of the order of nature. It deals with (1) the cosmological and physical setting for the origin of life; (2) atoms, chemical combination, the structure of molecules; (3) macromolecules, molecular associations, living cells; (4) sources of energy and material for life: fermentation, photo-synthesis, respiration; (5) processes of reproduction and inheritance; (6) growth and development, senescence and death; (7) the diversity of life as a product of evolutionary adaption; (8) mechanisms of evolution; (9) the integration of the organism, mechanisms of self-maintenance; (10) the organism in action: nerves, muscles, sense organs; (11) communities of organisms, bases of social organization; (12) man's place in nature.

In order to make it possible to penetrate to the molecular level wherever appropriate, the course will teach as much chemistry and physics as needed to develop the biological argument.

The enrolment is limited to 350 members.

2.25. Relation to post-graduate studies.

Medicine.

The emphasis placed on general education and liberal arts by the Medical School of Harvard University is reflected in the following statements. [Harvard, 1960, March, pp. 30 - 32] The physician-of-the-future

---

1. The text books used are as follows: HOLTON, Gerald, Introduction to concepts and theories in physical science, (1952), and Foundations of modern physical science, (1958), (Reading, Massachusetts, Addison-Wesley Publishing Co.).

will function at the junction of the natural sciences, the social sciences, and the humanities. To fulfil his role, he should have had educational experience in all these areas of knowledge. This is best accomplished when secondary school, college, and medical school are viewed as a continuum. The following are the minimal admission requirements to be met: first, basic skills in English, mathematics and a foreign language; and second, a liberal arts education that should include a competent knowledge of the natural sciences, the humanities, and the social sciences. (Since biology, physics and chemistry, are sciences basic to medicine, they would not fall within the definition of general education subjects used in these pages). "Courses in psychology and the social sciences are of value in increasing the understanding of human behavior, including the physician's own, but such courses are not to be considered a substitute for gaining familiarity with the source material -- the study of history, literature, art, religion, etc. At least 50 per cent of the undergraduate curriculum should be devoted to these areas." The Admissions Committee is not influenced by choice of a college major. "It should be the area that the student at his stage of life finds most interesting -- the area about which he is most curious and that gives him the most satisfaction."

Dental medicine.

The School of Dental Medicine catalogue stipulates certain courses that are required for admission to the study of dentistry. Beyond these the student should plan his undergraduate curricular studies in such a manner as to gain broad education in the humanities, arts and sciences in accordance with his interest and capacities. [Harvard, 1962, May, p. 85]

Law.

Dean Erwin N. Griswold gives the following advice to freshmen: "The Law School desires its graduates to become educated and cultured lawyers in the best tradition of their learned profession. It realizes that the foundation of liberal culture must usually be laid in college....."

"We stress particularly the importance of

acquiring an ability to use the English language. Over and over again we find that many of our students are unable to think accurately because they cannot express themselves accurately. In giving up classical education our colleges have sacrificed some of the disciplines that made for precision in the choice of words and in a resulting precision in the choice of ideas. Some work in college to meet those ends is most desirable."

"We add the suggestion that it is important to learn something about the history of our civilization. This can hardly be done merely by taking courses in history because a knowledge of the progress of our thought and of our ideas is as important as a knowledge of events of the past. English literature and philosophy thus have an equal claim with history in this field."

"The third suggestion we offer is that it is well to acquire some facility to deal with abstract ideas. Courses in mathematics tend to develop this. They have the qualities of being precise, of being closely articulated, and of being an entering wedge to techniques which are, in their essence, symbolical logic, whether or not they go under that name. Similar benefits may be derived from courses, particularly from advanced ones, in the exact sciences, such as chemistry and physics."

"Our fourth suggestion relates to the acquisition of some conception of the scientific method, both as regards its possibilities and as regards its limitations. I doubt whether that end can be achieved simply by an elementary course in science, because it seems necessary to pursue science far enough to come to the point where one realizes that it has ceased to be purely scientific. Similarly, we suggest that it is desirable for a student to know something of methods in the field of social science by way of contrast to those employed in the natural sciences. We would urge some training that would lead a young man back to the original sources in some field so that by the time he reaches the professional school he will have lost complete reverence for the printed page."

"We also recommend that the undergraduate avoid

courses in 'law' which are offered in some colleges to anticipate or supplement his later training. He will have plenty of opportunity to immerse himself in that subject when he reaches the professional school. The important thing for him to do in his undergraduate training is to take courses and develop interests that he will not normally take or acquire in a professional school."

"In general, the Admissions Committee prefers a liberal college education to one which is narrowly specialized. It recognizes with favor a showing of thorough learning in some wide cultural field of a student's choice, such as history, economics, government, philosophy, mathematics, science, literature, or the classics." [Harvard, 1962, May, pp. 80 - 82]

Public Administration.

"The primary purpose of the Graduate School of Public Administration is to train men and women for advancement in the public service, by increasing their understanding of issues of governmental policy and administration. The school's curriculum is not a fixed one, but is designed to meet the needs of the individual student. Its program, highlighted by a number of joint seminars, is directed toward correlating both instruction and research in all the social sciences."

"Men who plan to enter the school directly from college -- and they comprise about fifteen to twenty per cent of the student body which includes primarily experienced public servants on leave of absence -- need not devote their undergraduate years to any particular field of knowledge. Although some familiarity with government and economics is certainly desirable, the most important preparation lies in a broad liberal education. The quality of a man's undergraduate work is much more vital than its particular content."

"Deep reading in history and the other social sciences, and some grasp of scientific methods, are invaluable tools not only for the student in the school, but also for a creative future career in the public service. Very important, also is the ability to make effective use of the English language. That is best acquired before entering a graduate school, not

afterwards." [Dean Don K. Price, Jr., in Harvard, 1962, May, pp. 82 - 83]

The Harvard class of '60.

It may be interesting to see what a Harvard College graduating class actually does go on to do. [Harvard, 1960, August] 989 men received the A.B. degree in June, 1960. Eventual graduate study was the goal of 65 to 70% of the classes of 1957, 58, 59, but the figures (of their intentions admittedly) rose to 82% for the class of 1960, including the following percentages: after an interim job 8.5%, after military service 11.0%, and travel 1%. Of the 61.5% going on to graduate study immediately, the following were the schools they hoped to enter: Graduate School of Arts and Sciences 40%, Medicine 24%, Law 18%, Business 6%, Education 2%, Design 2%, Theology 4%, other 4%. The areas of concentration of the class of 1960 were -- humanities 28.3%, natural sciences 25.3%, social sciences 46.3%.

2.26. The freshman seminar program. [Harvard, 1960-1961]

Some seminars may be counted for general education credit, and therefore the program must be briefly described here.

Seminars vary widely in form and substance, but have three common features. They bring the student into close association with a faculty member. They demand serious, independent work. There are no lectures, no examinations and no marks (grades).

The students who participate are an élite group. 246, less than half, of the 565 Harvard and Radcliffe first years who applied were admitted in the fall term of 1960-61.

Some of the seminars appeal to specialized interests; others are broad in scope. One group of eight students interested in an intensive extra experience in expository writing, worked under Dean John Munro. Dr. Mary I. Bunting (President of Radcliffe College) supervised a seminar of not more than six first years in microbial genetics. Dean McGeorge Bundy directed a group of ten to twelve first years in studies of the relation between domestic politics and foreign policy in American history and in the history

of other countries. Unlike the foregoing, some seminars are not classified by academic area: five dealt with different aspects of the relationship between the individual and his society.

2.27. Some personal observations.

A difficult general education problem is the finding of suitable staff, since they may tend to be looked down upon in the United States as 'second-class' faculty'. Harvard avoids the problem by having its general education courses given by the specialist faculty. There is much to be said for an expert in a special field providing a general education in courses related to his own field, rather than for having a generalist discussing several special fields of which he knows only one well. The problem is to obtain the specialists who are willing to do this. Harvard has found men with international reputations who are prepared to give general education courses to freshmen: Conant, Finley, MacLeish, Howard Mumford Jones, Purcell, Tillich, Wald. It may well be however that they can do this for only one year in two -- perhaps for one year in three. Critics of Harvard call this the 'prima donna' approach. The Committee on General Education admits that it must exercise a great deal of tact and diplomacy, and has many postponements and disappointments to face.

There is little coordination of general education in the second-group courses, three-quarters of those taken being the normal departmental offerings, not specially designed to meet general education purposes. It may well be that Professor A gives an excellent course on a subject he is interested in. Professor B from the same department may give an equally good course the following year, but his interests may be very different from those of Professor A, and there may be little in common in the two courses.

Dr. Clarence H. Faust, Vice-President of the Ford Foundation, and a former Dean of the College of Chicago University, said[pc] that Harvard suffered from a 'sweeping eclecticism', favouring all current ideas without assessment of their relative importance.

The main comment of Professor John H. Finley[pc],

Chairman of the Committee on General Education from 1960/61 is that the second-group courses should provide some synthesis of the elementary courses. There is no one major peak, he said -- and not even several minor peaks -- from which to survey the lower levels.

Professor Kenneth B. Murdock[pc] said that the honeymoon period of Conant and the Harvard report was over, but there were no signs that the marriage of the special and the general was anything but a happy one. (He was for four years the predecessor of Professor Finley). There had been some stresses and strains, he said. His comments on the loosening of the requirements for the natural sciences were discussed earlier. Secondly, he explained, the number of general education offerings had been increased, but some were not given every year. Thirdly, the historical past-versus-present approach had come to be less emphasized in favour of a study of East-West problems.

An interesting comment from Dr. P.H. Rhinelander[pc], chairman up to 1954/55, follows. The specialist interests of specialist teachers make general education imperative. When a generation of teachers arises, all having benefitted from general education in their student days, they might, though primarily specialists, emphasize constantly the values of generalism, and make general education unnecessary. At this stage in the conversation, the telephone rang to announce the withdrawal of Professor Z from the program: Dr. Rhinelander shrugged his shoulders and changed the subject.

2.28. Some historical comments.

American curricula in the first half of the nineteenth century[1] were largely determined in pattern by the far-famed Yale Report of 1928. The Yale faculty held that the classics of Greece and Rome and pure mathematics were facile princeps, equally valuable for content as for discipline, because they provided a broad theoretical foundation for all later specialization. [Rudy, 1960, p. 2] Philosophy and religion were included, but little of the natural and social

---

1. ..... all undergraduate. Graduate education in the U.S. began with the founding of Johns Hopkins University in 1876. Yale conferred the first Ph.D. degree in America in 1861.

were included, but little of the natural and social sciences, nor of modern languages nor even of English. [McGrath, 1959b, p. 9]

Three Presidents of Harvard between 1869 and 1953 had a profound influence on undergraduate curricula. Eliot came back from a visit to Europe impressed by the specialized knowledge available there, particularly in German universities. This had been previously available to American students only if they travelled to Europe. In a reaction against the narrow classical curriculum of his country, he proposed a wide choice of subjects. Thomas [1962, pp. 20 - 34] points out that, since the elective system which Eliot encouraged is often blamed for the major ills of American education it is worth while to note that his proposals were based on the belief expressed in his Inaugural Address as President of Harvard College 1869 that "a university is not closely concerned with the applications of knowledge, until its general education branches into professional." Thirty years later he spoke of the importance of "an accurate general knowledge of all the main subjects of human interest, besides a minute and thorough knowledge of the one subject which each may select as his principal occupation in life." He believed that schools would provide a general education, and that the young undergraduate would choose his course wisely.

This was not to be, and in fact Eliot's elective system led to specialization, and general education receded. Indeed even the advocates of specialization were dissatisfied. The views of Woodrow Wilson and Harper have been noted. Wilson attacked all specialization that was not founded on a liberal education. The elective system obscured 'the idea of a balance between general and special training'. John Dewey pleaded for 'a philosophy of unity'.

It was Lowell, successor to Eliot in 1909, who reversed the process. As early as 1887 he expressed distrust of the elective principle. The purpose of Harvard College, he said, was "a general training of the mind as distinguished from acquisition of specific information." Concentration upon a single subject could accomplish only one-half of the goal of a college

education, since "a thorough education ought to make a man familiar with the fundamental conceptions that underlie the various departments of human knowledge, and with the methods of thought of the persons who pursue them." He laid the basis then of the principle of concentration and distribution which he inaugurated in 1909 -- when he became President. Distribution would ensure a general education. Concentration together with distribution would provide a liberal education: not for him specialization only, to meet vocational and professional demands. "Instruction that imparts a little knowledge of everything is more difficult to provide than any other. To furnish it there ought to be in every considerable field a general course, designed to give men who do not intend to pursue the subject further a comprehension of its underlying principles or methods of thought; and this is by no means the same thing as an introductory course."

The implementation of this policy is still a problem today, and it is little wonder that full success was not achieved in Lowell's day.

The influence of Conant and of the Harvard report are not discussed here, since they are referred to very frequently throughout this dissertation. The Harvard pattern discussed in section 2.2 is the outcome of the views of Conant and of the authors of the Harvard report.

2.3. THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY.

A few miles from Harvard, down the Charles River, lies M.I.T. Its program of general education provides many interesting comparisons with that of Harvard. There are five Schools at M.I.T.: Science, Engineering, Architecture, Industrial Management, and the School of Humanities and Social Science. Of entering freshmen in the fall of 1960, numbering about 900, the great majority expressed a preference for engineering or for science.[1] The problem of providing general education

1. The figures over a five-year period reveal striking changes:

	1955/6	1956/7	1957/8	1958/9	1959/60
Engineering	612	572	521	491	431
Science	251	286	335	399	454

[Stratton, 1960, p. 44]

in the sciences for humanities majors does not arise.

2.31. The freshman 'core'.

The first-year program is common to all courses except architecture, and consists of mathematics, physics, chemistry and humanities. 21.01 and 21.02, the first term and second term courses entitled 'Introduction to the humanities'[1], represent 16 units out of 90. An elective subject -- chosen from a list mainly technical, but including an undergraduate seminar -- is added to the standard four subjects. In the sophomore year students must take 'Modern western ideas and values' (21.03 and 21.04), or a newly introduced (1960-61) alternative, 'The modern world and social science' (14.003 and 14.004).

The topics considered in the first year are the following. 14.01: I -- Greek ideas and values, II -- Christian ideas and values of the middle ages. 14.02: III -- the sixteenth century, IV -- the seventeenth century. The list of required books (but not of optional books) is given below.[2] This information is for the year 1958-59. The course is built essentially around great works from a period, and not around great works about a period. The course has been constantly revised, since it was started in 1952, and wisely so, because once a program settles, it decays. 900 freshmen take this course in groups of 25 to 30, and the teachers meet regularly to discuss methods and content. Attendance at such a meeting shows the continual pressures to include something new, or to exclude certain portions. In the background 'a battle of memoranda' goes on, and the disagreements lead to healthy analyses and syntheses.

2.32. The sophomore 'core'.

The list of topics dealt with in 21.03 and 21.04

---

1. The course was called 'Foundations of western civilization,' up to 1958/59, but the change in title made little difference to the content.
2. I -- Sophocles, Antigone; Thucydides, The Peloponnesian war; Plato, Republic. II -- St. Augustine, Confessions; Dante, The divine comedy. III -- Machiavelli, The prince; Selections from Calvin's Institutes; Luther, Christian liberty; Shakespeare, King Lear. IV -- Galileo, Dialogue on great world systems; Hobbes, Leviathan; Locke, Second treatise on civil government.

follows. Modern western ideas and values: The enlightenment, romanticism, liberalism, transvaluation of 'traditional' values, evolution and the unconscious mind, new types of consciousness -- (i) the meaning of meaning, (ii) new form and consciousness in the arts. Examples of examination papers for 21.02, and for 21.04 are to be found as an appendix to this chapter.

Professor Howard R. Bartlett, Chairman of the Department of Humanities, from 1939 to 1962, makes the following comments about the courses referred to above. [Fisher, 1960, pp. 174 - 176] The course makes no pretence of being a survey of western civilization or an introductory course in any academic discipline. It is one plan for bringing students in contact with some of the great minds of the past as they have dealt with the fundamental problems of human existence. Through an examination of the bases on which men make and have made responsible moral, philosophical, historical and aesthetic judgments, the student develops some awareness of his potentialities and limitations. By examining ideas in action at particularly significant periods in man's history he enlarges his perspective, and increases his understanding of some of the forces which have created the society in which his life and personality are being shaped.

2.33. Junior and senior year requirements.

The first and second year work in the humanities and social sciences provides the necessary core of common intellectual experience. The third and fourth years give an opportunity for some deep-digging. The standard of these courses is very high: sometimes they are attended by both graduates and undergraduates.

The juniors and seniors must choose three half-year courses in one field, and a fourth in another. Percentage distributions of undergraduate electives in the year 1961-62 follow. The figures in brackets exclude 14.01 (economic principles) which is a required course in many departments: literature 15.7 (13.3), philosophy 15.0 (12.7), economics 15.0 (28.0), psychology 13.5 (11.4), political science 9.9 (8.4), music 9.2 (7.8), modern languages 7.9 (6.7), history 6.5 (5.5), labour relations 3.7 (3.2), visual

arts 3.6 (3.0). [Burchard, 1962, p. 60] It is a good reflection of the interest taken in liberal education that the numbers of electives taken is always above the number required: 4356 against 3474 in 1957/58. [Burchard, 1958, p. 4]

Dean Burchard has some caustic comment to make on the fact that many departments require at least a semester of economics. "I continue to find it perplexing that engineers throughout the nation cling to the idea that economics is essential for an engineer but that knowledge of political and social structures and their history or of human behaviour is not. One can applaud the engineers of America for their faith in economics but wish they had as much interest in other social sciences. Engineers out in the world can make more mistakes through their anthropological, psychological, sociological, or historical blind spots, even their aesthetic indifference (as our urban highway systems show), than they are likely to be permitted to make in strictly economic matters." [Burchard, 1961, p. 6] In a private conversation he said that he feared many engineers knew so little about economics as a subject, that they imagined its main purpose was to teach undergraduates now to run a business in the black and not in the red!

It should be noted here that M.I.T. students who wish to study economics as part of their general education in their junior and senior years must take the two fairly general half-year courses on economic principles and one other, and may not take specialized economics courses.

2.34. Student activities.

The program in the humanities and social sciences is supplemented by a very strong extra curricular program in music and the drama, and by an extraordinarily successful lecture series administered wholly by a student organization. The extensive nature of student activities is illustrated by a diagram at the end of this chapter. (See p. 111)

2.35. English.

M.I.T. and Harvard differ considerably in their

programs of general education, especially in that M.I.T. has 'core' programs for freshmen and sophomores. They differ in three other respects which make for interesting comparisons: see 2.35, 2.36 and 2.37.

Harvard's general education A course is a compulsory course in English. M.I.T. has no required freshman course in English.

The following information comes from Professor William C. Greene, Professor of English. [Shoemaker, 1960, p. 127] With the inevitable battle for time, M.I.T. has decided that the best basis for freshman composition is the work in the humanities the students all do. The emphasis in the first year, it has been noted, is on 'great works' -- books as examples of how a historian or philosopher or a dramatist writes. Out of this closer look at books and the way they are written the student may be expected to see the value of words and their relationship, and so may directly learn some basis of writing. Regular papers are required in the freshman humanities course, and some teachers spend as much time on the papers and the English in which they are written, as on the elucidation of books. That this training is inadequate is realized when students have to write a senior thesis on a technical subject. "At that point the thesis supervisor is inclined to scream". Professor Greene concludes wistfully by saying that "the greatest boon to college composition ..... would be the eradication of the need for it. If in the field of composition something could be done like the already visible improvement in education in physical science in the high schools, that need may well for the great proportion of college students vanish."

Professor Robert E. MacMaster provides some valuable information for the staff of 'Foundations of western civilization', (as it was called at the time of writing) in an unpublished memorandum. One of the central ideas of the course is the teaching of reading, but this statement requires clarification, he says. "Of course, the students, in one, sense, know how to read when they arrive here. Literacy is not our problem. Nor are we operating a reading speedup and comprehension clinic. Our problem is rather to teach the student how to orient himself in reading books in the humanities.

This means teaching him how to ask the right kind of questions ..... questions that will open up knowledge about the human being." He has this to say about writing: "At least six full class hours (one about every two weeks) should be set aside in each semester for the purpose of discussion of composition. This, however, should be carefully integrated (through the setting of appropriate theme topics) with the ongoing program of the course. In no sense should composition be thought of as a separate operation. Composition is (along with student discussion in class) the laboratory work of 14.01 and 14.02. Problems in the study of human possibilities should be set for the student to work out on his own and to write up. Student compositions should mirror the extent to which the end products of the course are coming off the line. Students should also be told all of this. Here, as elsewhere, we strongly advocate 'letting the student in' on what it is he is doing." Professor Bruce Mazlish, talking of 'Modern western ideas and values' (21.03 and 21.04) in an unpublished memorandum summarizes the matter succinctly. The three purposes of the course he says are to make the student think critically, to make him read a book critically, and to make him write critically.

2.36. Discussions or lectures?

There is equal emphasis on spoken English in the general education courses. They are conducted in groups of not more than 25 to 30. Reading is assigned at each lecture for the next, and every student must be ready to discuss his observations. Some comments, especially from the students at the beginning of the first year, proved to be far from profound, but this, say the teachers, is the 'theory of pooled ignorance,' and not the 'theory of inundation' of the lecture room. Indeed at Harvard hundreds may be enrolled in a course and all attend a lecture at the same time. They may enjoy an inspiring lecturer who can make a complex matter look simple, but personal observation establishes that some lecturers can make a simple matter sound complex. At M.I.T., on the other hand, the senior staff never come into contact with the juniors. They cannot be expected to teach just one 'Introduction to the

humanities' group. It would be embarrassing if hundreds applied for admission to this group, and perhaps more embarrassing if they did not!

It is doubtful whether the discussion method achieves all it claims to do, and unfortunately the issue is clouded by an almost emotional abhorrence for the word 'lecture'. Certainly some students speak up in discussion groups, but it is largely those who would speak up anyway. Personal observation of the same class on six consecutive occasions showed that some students hardly ever contributed, and even 25 is too large a group for the teacher to draw out every timid freshman. The impression given is of ragged discussion, discussion which may start in one place and finish anywhere. It is so easy to encourage supercilious questions instead of conclusions however tentative. Students may well feel they can say something of value without much background knowledge, and the class degenerates into a glorified 'bull-session'. This will not happen at the hands of a good teacher, of course, and this is the problem of the next section. Many of the teachers are inexperienced, and have little incentive and less intention to make a career of general education. Under a good teacher, discussion is stimulating, and the students are kept on their toes.

Personal observation later in the academic year might well have given a different impression. Certainly these comments are less true of sophomore classes, and not at all true of junior and senior year classes. Is the Harvard plan better -- to supplement a lecture by a senior professor, with smaller groups for discussion, even under a junior teacher? There is little inducement open to the leaders of these smaller groups, who are sometimes senior students doing this work in order primarily to meet their tuition fees.

The last word here goes to Dr. Winslow R. Hatch of the U.S. Department of Health, Education and Welfare Office of Education. He said[pc] that 'discovery' is twice as effective as 'recitation', and that 'guided discovery' is twice as effective as 'discovery'.

2.37. Problems of obtaining and retaining general education teachers.

It is to be understood that in a world where the

academic rewards go to specialists it is difficult to persuade the young university teacher to devote his life to general education. At Harvard, sometimes young teachers are appointed to a department on condition that the department arranges that they shall give part of their time to the general education program. This does not stop them from resigning later to take up a more senior specialist post.

'Tenure', that is permanency of appointment, is given at M.I.T. only after 7 years as an instructor and assistant professor. At age 37 such a man must be given tenure or be dismissed. No one is given tenure before the age of 37 unless he is made a full professor before then. The average man joins the M.I.T. staff at 30, and is an instructor for 4 years and an assistant professor for 3. He has 7 years to make a reputation, and only an unusual man can do this. If a teacher wants a post at another university, experience of general education at M.I.T. may not weigh as heavily as experience as a specialist in a university of lesser prestige. The pressure on publication in American universities is as strong as ever, and it is hard to find something profound, something new, to say about general education. The morale problem was so great at M.I.T. that there had been a turn-over of one-third in junior general education staff between 1959/60 and 1960/61.

Dean Burchard refers to this problem in his annual reports for 1961 and 1962. "Any core subject must fail in the end unless it is brilliantly taught -- and a cross-disciplinary or integrative subject can fail more easily with bad teaching than a conventional one which is part of a conventional sequence. Unless one is prepared to settle for lecture courses, it is almost impossible to marshall an inter-disciplinary faculty for a core course in which the men of each discipline teach the part they know best. If this is not done, on the other hand, each teacher is expected to know too much about too many things." [Burchard, 1961, p. 38]

"I have known many cases in many places of slow promotion or slow increases in salaries for those who were conceded to be fine teachers but whose scholarship was mediocre or absent, but I imagine there have been few cases in any recent university history where

promotion or prestige has been withheld from a man whose scholarship was good even when he was known to be a miserable teacher or even one who flagrantly skimped his teaching obligations ..... In the whole country I cannot think of a handful of men who have made notable careers based principally on their teaching contributions to general education." [Burchard, 1961, pp. 40, 41]

He proposes a Young Professors' Growth Fund, and a year later is able to announce an endowment fund of 500,000 dollars. [Burchard, 1962, p. 34] This makes possible before the age of 37 two periods of leave of one term (that is, half of an academic year) which, with a succeeding or following summer, gives two extended periods of uninterrupted time for research and writing.

M.I.T. provides some unusual double major courses in economics, politics and engineering (XIV-A), and economics, politics and science (XIV-B), and also in humanities and engineering (XXI-A), and humanities and science (XXI-B). Rensselaer Polytechnic Institute provides a degree of Bachelor of Science in economics, or psychology or philosophy. These are undergraduate degrees in social science or in the humanities which include substantial sequences in mathematics, natural science, and technology. Such technological institutes are evolving into 'universities of limited objectives'. They "add a new dimension to American higher education. Further experience with such programs may well provide a modern plan for undergraduate professional education which is at once genuinely liberal -- and singularly appropriate to the needs of our emerging world." [Holstein, 1960, p. 121]

These developments merit mention in their own right in these pages and their importance at M.I.T. can be seen from the space devoted to them in the Dean's annual reports. In this section it may be stressed however that it is a result, if not a purpose, of these programs (and of the Ph.D. programs in political science or psychology, in industrial economics, or in linguistics; and also of the M.S. programs in economics and engineering, or in economics and science) that distinguished senior staff can be attracted and retained. [M.I.T., 1962-1963, pp. 131 - 143]

2.38. Personal conversations and personal impressions.

It was to be expected that Dean Burchard would speak of the values of general education, although he has his gloomy moments, particularly about finding suitable staff, and the ever-present problems of lectures versus discussions, and 'core' programs versus either distribution or free electives. [Burchard, 1961, pp. 33 - 41] It is with some trepidation that a questioner approaches men such as the Dean of the School of Science, Dr. G.R. Harrison; or the Dean of the School of Architecture and Planning, Dr. Pietro Belluschi, to ask whether the time spent on general education is justified.

For Dean Harrison[pc], it is axiomatic that science education at the undergraduate level must be associated with the humanities and the social sciences. It is positively dangerous, he said, to let science graduates loose without a knowledge of the problems which had faced mankind in the past and will in the future, and some attempt to understand the answers which have been given. The pressure for the inclusion of humanities and the social sciences came as much from the science and engineering faculties as from the humanities and social science faculties. The time problem was certainly a difficult one, he agreed, but constant revision of curricula, not lengthening of the course, was the answer. No one could reasonably expect work to the highest level to be done during an S.B. course of four years, but it could be achieved in seven years leading to a doctorate.

Dean Pietro Belluschi[pc] admitted that time was a problem for students of architecture. The solution was not to cut the time spent on the humanities and social sciences, but to reverse the tendency towards proliferation of subjects. He said that employers who complained that students had not been trained in every detail must be taught that graduates had to be treated as apprentices for two to three years. A school of architecture could not duplicate all the realities of office routine, not even with several extra years. More architects stayed in architecture than did scientists or engineers in their professions; the 'executive responsibility ten

years after graduation' argument was not so strong therefore, in his opinion. But architects need more not less than engineers or scientists, to understand society and people. They must lead not follow especially in aesthetic and functional fields.

Dr. Julius A. Stratton referred[pc] to his inaugural address as President and his statement that "the foundations of a professional life may profitably be laid in the undergraduate years, combining with and contributing to a liberal education, to the enrichment of both," which was the view of the founder of M.I.T. in 1861, William Barton Rogers.

One final comment follows. There is no doubt that students personally observed in many classes were intensely interested in their general education work. It is often suggested in South Africa that this would not be the case especially for science and engineering freshmen. It is only fair to add that admission to the exclusive universities is not by school attainment only by any means; among other factors, a personal interview weighs heavily. A student with a distaste for a broad education would probably not be admitted.

2.4. YALE COLLEGE.

The term general education is hardly ever used at Yale, but Yale places great emphasis on the liberal arts. President Griswold has said that the purpose of an education built around the liberal arts "is not to turn out mechanics and businessmen for the workaday trades that we all follow when we graduate from college and start to earn a living. It is to season the timber before it is built into the ship; to prepare the apprentice before he becomes apprenticed." [Yale, 1962, Sept., p. 20]

2.41. Concentration and distribution.

Yale undergraduates must follow a pattern of concentration and distribution. A full-year course, or two half-year courses in the same subject, must be followed in each of the seven following fields. [Yale, 1962, April, pp. 1 - 26 and Yale, 1962, Sept., pp. 22 - 26]

1. English.

2. A foreign language, ancient or modern.
3. History, ancient or modern; history of art; history of music; history of science and medicine.
4. The social sciences.
5. The natural sciences.
6. Classical civilization; philosophy; religion.
7. The natural sciences; mathematics, an advanced foreign literature course.

College credit (i.e. exemption), or distributional credit (i.e. freedom to take alternative subjects), may be given on the basis of very good school work in particular subjects. Three, four or five of these subjects are taken in the freshman year; one may be taken in the junior year; occasionally one is taken in the final year. There are at least several, and in most cases, dozens of different courses by which each of the seven requirements may be met. Having also a choice of about four or five electives, an undergraduate may find himself pursuing a unique program not duplicated by any other student in the university.

At the end of the first year the freshman must choose which of several broad paths he will pursue; humanities, arts, social sciences, natural sciences, engineering and applied science, or industrial administration. These will lead to the degree of Bachelor of Arts or Bachelor of Science. (As from 1966, engineering majors will be awarded the B.S., not the B.E.,degree). B.S. students will choose their majors at the end of the freshman year; B.A. students decide one year later. A student's major fills approximately sixty per cent of the course work of his final two years. The remaining courses can be elected from complementary or even totally unrelated fields.[1] The total of all courses is usually twenty, that is five per year.

B.E. requirements used to include six subjects in the fields of the humanities and social sciences out of a total of twenty. Dean G. Robley boasted that Yale had the most liberal program of any undergraduate school of engineering.[pc]

A special publication giving advice to freshmen on preparation for professional studies makes little or no

---

1. Dean William D. De Vane said that these courses should be outside the field of the major.[pc]

specific reference to the importance of liberal education. Brief comment is made with respect to law and to medicine, but not in explicit terms. [Yale, 1960, May, pp. 52 - 61] No doubt, however, the emphasis placed on liberal education by the late President Griswold is implicit in the attitudes of all schools.

Distributional requirements thus ensure that a general education pattern is followed, even though the name is not used. The courses to be taken are however normal departmental offerings, and not interdisciplinary courses especially designed for the purposes of general education. A comparison with Princeton College.

It is of interest to note that the announcement of the undergraduate College of Princeton University lays down very similar regulations. Adequate standards are required in English composition, and in either a foreign language or mathematics. Two one-term courses must be completed, preferably in the first two years, in each of the following areas:

I Natural science: biology, chemistry, geology, physics, psychology.
II Social science: economics, politics, sociology and anthropology.
III Arts and letters: architecture, art and archaeology, English, ancient and modern languages (including literature in translation).
IV History, philosophy, religion: history, oriental studies, philosophy, religion, and (with special permission) certain courses in mathematics.

[Princeton, 1960-1961, pp. 22 - 24]

2.42. English.

English as part of a distributional program is of such importance, that separate reference needs to be made to this subject. Freshmen will be assigned on the basis of their school and entrance records to English 10, 15, 24, or 25. English 10 is designed for those who need training in composition. English 15 assumes greater proficiency in composition, and is devoted to careful reading of English prose and poetry. Freshmen may be admitted directly to more advanced courses only if they have excellent entrance records and special qualifications for the study of English. [Yale, 1960, May, p. 75]

2.43. The Program of Directed Studies.

Specially designed courses are given to students whose applications to follow the Program of Directed Studies are successful. This group numbers about 60 freshmen and 40 sophomores out of freshman classes of about 1,000 each, and although it is not meant to be an élite group, it 'drifts that way', said Dean De Vane, because of the strict selection. It is open to freshmen whose past performance entitles them to advanced credits in two or more subjects. The program is directed, in the sense that a greater degree of uniformity in course requirements is provided than in the usual optional-course distributional program. The program is however flexible, because the courses are taught in small discussion groups of ten or twelve students. Discussion tends to cut across departmental boundaries. During the years 1954-57 experiments were conducted with a series of inter-departmental lectures and discussions, centred, for example, on courses such as the 'Interrelationship of art, science, literature and philosophy in the eighteenth century.' [Yale, 1960-61, pp. 1 - 5]

Personal discussions in 1960 revealed, however, that although good staff were to be found in the various departments, release was infrequent. The departments of Yale are very strong, and appear to have little sympathy for inter-departmental approaches. The course may well be very successful as a preliminary to independent work in specialist fields in the upper-class major or honours programs. Its appeal does not, however, lie in its more general nature. It appears that the reason why students on the course accept this limitation of electives is not because of a wish for breadth of education, but because of the prestige of belonging to an élite group.

2.44. Some historical comments.

The point of view expressed in the Yale report of 1828 dominated undergraduate education for much of the nineteenth century. The end of higher education, it said, was the 'disciplined and informed mind', a mind with 'faculties' such as memory and reason. Mental powers could be developed by exercising these faculties,

and the best subjects for the purpose were the classics and mathematics. Such power would be freely transferred from one field of study to another, and from the general 'culture' of college to the future vocations of life. All specialized studies of a professional nature were relegated to special schools or were to be learned through actual practice and apprenticeship. The newer natural sciences, if taught at all, had to be studied in separate 'schools', such as the Sheffield School at Yale and the Lawrence School at Harvard. As late as 1841, the Yale catalogue echoes the 1828 report. To the heavily classical course, a few ad hoc courses in the natural and social sciences are added. [Rudy, 1960, pp. 2, 13] "For decades Yale was the fecund 'mother of colleges', sending forth her sons to establish liberal arts institutions on the ever-expanding frontier [and so] the influence of the educational philosophy stated so forcefully in the report of its faculty was profound." The new educational and social forces unleashed by the Civil War effected radical and enduring modifications of the common liberal arts curriculum. The mere multiplication of academic departments affords a crude index of the extent to which traditional liberal education disintegrated in the second half of the nineteenth century. In 1840 Yale College had 8 departments, and in 1905, 22. Yale College, for nearly half a century the chief stronghold of the prescribed classical course of study, had by this time become a leader in the movement which eventually abolished the venerable liberal arts curriculum. [McGrath, 1959b, p. 10] By 1905, the entire junior and senior years became elective. "But to insure that a student would not dissipate his efforts in choosing electives a form of the 'major-minor' system was introduced. All subjects were grouped in three main divisions: languages and literature; mathematics and natural science; education and social science. Undergraduates were required to complete at least two major units and three minor units of work in these divisions. (A major unit consisted of seven credits, and a minor unit of five). Most important, a student could not take more than two of these units in any one of the three main divisions. As for the remaining thirty-one credit hours in the

upper-class elective group, these could be chosen 'without any other restriction than such as will be found in the printed statements of the individual courses'." [Rudy, 1960, pp. 14, 15] To this day, there is more choice, even among distributional requirements, at Yale College than at other colleges of similar standing.

2.45. Residential colleges.

One of the most fruitful ways of achieving breadth of education is to live in a college residence in a university, especially one where a very high percentage of students do so, thus ensuring contact with many others of different academic interests. Freshmen enter one of the eight dormitories on the Old Campus, and they have their meals in near-by Commons, the university dining hall.

From the sophomore year students live in one of the twelve colleges. Freshmen are assigned to a college even before coming to Yale. They participate in the social and sporting events of the college, in its student-faculty relationships, and take several meals a month in the college.

The residential colleges comprise one of Yale's most important and distinctive features. Each college has approximately 240 resident members, divided equally among sophomores, juniors and seniors, who represent naturally a variety of academic majors. Each college has its own library, dining hall, snack bar, recreation rooms, and sixteen athletic teams; often its own chapel, news paper and dramatic, debating, and singing groups; always its own traditions and esprit de corps. Associated with each college are 40 to 60 faculty members designated as Fellows and representing various fields of study in Yale University. At the head of every college is a Master who, together with his family, lives in his own home within the college courtyard. A special feature of each residential college is the Sophomore Seminar Program providing small discussion classes, yielding full college credit and presented in sufficient variety to appeal to almost every second-year man. [Yale, 1962, Sept., pp. 16, 18]

2.5. COLUMBIA COLLEGE.

2.51. Major or concentration.

Columbia College students choose a major or concentration in a special field on the one hand, and on the other, fulfil certain requirements for breadth. A major consists of intensive study of one subject by completing a well-defined sequence of courses which the department has prescribed and the college faculty has formally approved. A concentration does not require the completion of a specified sequence of courses; instead the student completes a prescribed number of courses in one department, including a seminar if the department requests it, and a prescribed number of related courses. Most departments offer a major and a concentration. [Columbia, 1960, April, pp. 25, 26]

2.52. Distribution.

The term general education is not often used at Columbia College. The faculty is not very fond of it, and the students would probably be surprised to learn that Columbia College has a general education program. Indeed the terms general education and distribution are seldom to be found in the 'announcement.' Nevertheless, the following are required courses: contemporary civilization A and B[1], a two year sequence; humanities A and B, a two year sequence; English A1-A2, a one year sequence; mathematics and science requirements, two years; physical education A1-A2 and B3-B4, four terms; and the foreign or classical language requirement.

Foreign language.

The foreign language requirement necessitates a grade of B- at intermediate (second-year) level or better, unless exemption is granted on the basis of an achievement test.

Physical education.

The physical education requirement may be satisfied by participation in intercollegiate sports, or through attending a regular section of physical education, or

---

1. Contemporary civilization B is now [1963] an elective course.

through restricted and adapted physical education. Complete exemption may be obtained only from the university medical officer, but he usually assigns limited activity wherever possible. It should be noted, although it has not been mentioned before, that some physical education requirement is made by practically all American universities. At Columbia the purpose of physical education is not principally the building up and maintenance of physical strength, but the integration of the physical life with the mental, and the development of patterns of social behaviour to which the give and take of personal contact and competition, and the necessities of coordination contribute very appreciably. The loyalty to a group, the intensity of work, the personal sacrifice for the good of the team, the close association of athlete and coach, and of player with opponents from other institutions, are all experiences which are hard to duplicate in formal class work. Many a teacher, who has judged a particular student only by his prowess in the teacher's own subject has been amazed to see the same student on the sports-field, and to realize that he has qualities never observed in the class-room. "We tend to forget that the young men who followed Plato and Aristotle in the groves of Academe took their physical condition quite as seriously as their learning, and gave far more time to it than do our undergraduates today." [Columbia, 1946, pp. 41, 158 - 9]

These requirements may seem to the average student 'paternalistic if not disagreeably compulsive', but they are seriously intended. Only one credit point is given for physical education, but it must be obtained. Dr. L. Carroll Adams, Professor of Physical Education, spoke[pc] of students whose degrees had been refused because of inability to swim. Every 'Ivy League' college, he said, required swimming for a degree: Columbia had instituted swimming in 1890. Those who were reluctant to undertake physical education voluntarily were those who needed it most. Handicapped students could be given, and certainly needed, special exercises. Poor coordinators needed to learn fundamental skills such as swimming, running, jumping and throwing. The only students excused -- about 1% --

were cardiac cases.

Opportunity must be taken here to refer to a type of course which would not earn university credit in South Africa or in Britain -- courses in General education for personal maturity, [Morse, 1960] to use the title of a volume in a recent General education series edited by McGrath. This describes thirteen courses on I 'Maturity in personal and social adjustment', II 'Maturity in preparation for marriage and family living', and III 'Maturity in the selection of a vocation'. The first example of I in this book is a description of the Columbia course in health education called 'Personal living'. It is described by Professor Ernest I. Stewart. [Ibid., p. 15]

The course is described here because it is obviously related to the work in physical education. The latter is a required course, but courses in health education are electives. The course begins on a subject-matter basis, but as it enfolds, the students, often without being conscious of it, begin to apply subject-matter materials to themselves. The aim is to help each student to develop adult status and to emancipate himself from his family; to choose, prepare for, and enter a suitable vocation; to achieve social integration with his peers and others with whom he must live and work; to develop mutually satisfying relations with the opposite sex and make progress towards the mature selection of a marriage partner. A further health education course called 'Marriage and family living' deals with this point.

The real need for such courses was shown by one investigation using the 'critical incident' technique. 1,101 descriptions were received from students who described the problems they had met of emotional, scholastic, vocational, sex, social and economic adjustment, home relationships, personal health habits, motivation and goals, and religion. [Ibid., pp. 18 - 20]

Mathematics and science.

One two-term course must be taken from each of two of the following groups:

A mathematics;
B astronomy, chemistry, physics;
C botany, geology, psychology, zoology.

These may be normal departmental offerings of suitable level. In some cases, but not all, special

courses are arranged for students who do not propose to continue further in a particular subject. The object of mathematics 1-2, for example, is to make possible a glimpse into the world of mathematics and its application. The course has no analogy with the other courses in the undergraduate sequence. Although the material is elementary, it is approached from a thoroughly contemporary scientific point of view. [Columbia, 1960, April, p. 103][1]

The physics department has three separate plans for freshmen. Physics 1-2 (elementary physics) is a terminal course. It provides an introductory treatment of crucial experiments and theories of physics: particle mechanics; heat and kinetic theory of gases; electromagnetism; wave motion; atomic spectra and the Bohr theory of the hydrogen atom; nuclear reactions; elementary particles. Physics 3-4 (general physics) is designed for pre-medical students. For comparison its content is given: the study of matter and motion as the foundation of physical science and the development of mechanics in its historical background; energy, heat, and the molecular structure of matter; electricity, magnetism, optics, and atomic and nuclear physics; the nature of physical theory and of scientific explanation.

Physics 6-7-8 and 9-10 are the regular courses for students who wish to specialize in this or related fields. Physics 6 deals with mechanics and heat, physics 7 with electricity and magnetism, and physics 8 with light and atomic physics. Physics 9 and 10 provide the parallel laboratory hours. [Ibid., pp. 118 - 9]

The zoology department provides two freshman courses. Zoology A1-A2 is primarily designed for the liberal arts student, and may not, for example, be counted toward fulfillment of medical school zoology entrance requirements. It can however become part of a major program in zoology with proper choice of upper-college courses.

---

1. Personal correspondence [1962] with Dean John W. Alexander indicates that the Committee on Instruction has decided that the above categories be eliminated and that a student may satisfy the mathematics-science requirement by taking full year courses in any two of the following sciences: astronomy, botany, chemistry, geology, mathematics, physics, psychology and zoology. Alternatively, he may meet the requirement with two full-year courses in any one science. None of the courses used to satisfy the mathematics-science requirement may be used to meet any other degree requirement.

Zoology I is the normal course for students wishing to specialize in zoology, and for pre-medical and pre-dental students. [Ibid., p. 136]

No comparable arrangements are listed in the bulletin for botany, chemistry, or psychology. Course 1 of the department of geology is a prerequisite to all other courses in geology. The department of astronomy does not encourage a major or concentration; it provides an elementary course in general astronomy.

The 1957 President's 'Committee on the educational future of the university' criticized the mathematics and science program as the 'least satisfactory feature of the concept of general education in the curriculum of the college.' The Columbia Daily Spectator provided a series of articles in the fall of 1961 on this subject. It found most of the members of the science faculty of the college decidedly cool toward modifying the program into a unified course that would decrease a student's proficiency in a specific discipline in order to emphasize the comprehensive relevance of science to culture. Professor Polykarp Kusch, chairman of the physics department, asserted that science must be presented to the non-scientist in a 'substantial penetrating treatment'; he said that the student 'will gain a deeper understanding of science philosophy and aims by specializing.' He called a unified course 'dillettantish smattering and dabbling in all the sciences, proclaiming a unity which does not exist.' [Columbia University Forum, Winter, 1961, p. 50]

It is evident that little special provision for general education is made in the sciences and mathematics. In view of the very strong emphasis on the contemporary civilization and humanities courses this is surprising, and reference is made to this point below in section 2.57., where some historical comments are to be found. Contemporary civilization A and B, and humanities A and B are courses of such importance that they will be dealt with in separate sections. First however some reference must be made to the requirement in English.

English A1-A2.

The course is called 'College composition.' In the autumn term, intensive training is provided in the composition of expository and argumentative essays.

Topics are based upon readings in 19th and 20th century authors. The work tends to stress skill only, and not subject matter. It cannot be centred around humanities A because only 60% of freshmen take this course in the first year. Although practically 100% of freshmen take contemporary civilization A, the English staff do not know enough about the subject to use it as a basis for compositions.

In a class visited, the first paragraphs of six 'themes' were written on the board and criticized by the students. The essays were based on a comparison of a physiological discussion by W.K. Livingstone on 'What is pain?' and on a philosophical and theological treatment of 'Human pain' by C.S. Lewis. The criticisms the instructor brought out were of vague, redundant, 'pedestrian', awkward, repetitive words and sentences, in addition to elementary errors of punctuation and syntax. Praise was given for clarity, brevity, conciseness, simplicity and for gracious writing.

The text-book, one used in many universities, is Inquiry and expression, by Martin and Ohmann (Rinehart and Co.)

The stress in the spring term is on some of the resources of the English language through a study of its poetry. One long paper is required (in addition to the shorter compositions throughout the year), and its subject is usually one of the poets studied. Papers are usually historical, not literary, in character.

In 1960, the course was staffed by one associate professor, one assistant professor, 2 Ph.D's. and the rest were graduate students. The course has little prestige in Columbia College. It should be noted however that after the introduction of the course in contemporary civilization in 1919, the required two years of English were reduced to one. When CC-B was introduced in 1929, it was found possible and desirable to reduce the six points for English to three.

Most colleges have a course in remedial English. Freshmen who are not up to the standard of English A1-A2, numbering about 15 in 700 to 800, follow this course, and those with a grade of B- or better, may be exempted from English A1. A class visited consisted of students who were certainly average, not bright, in speech, but who needed improvement in written English.

2.53. Contemporary civilization, A and B.

CC-A is the best known course in general education and the oldest. It has been followed in over 200 institutions, and dates back to 1919. Dean William C. De Vane, until recently Dean of Yale College, is an authoritative and impartial critic. In his view[pc] this is the most thorough-going of all general education courses in America.

The content of CC-A and CC-B.

The first year of the course is based on the two volumes Contemporary civilization in the West, providing over 2,600 pages of selected writings from Plato to authors of this century. [Columbia, CC-A, 1960/1] The chapter headings of the latest edition (1960) of the first volume are:

I. The medieval heritage: classical influences.
II. The medieval heritage: Christian and Jewish conceptions of life.
III. The medieval heritage: economy, society, polity.
IV. Centralized government and the secular political spirit.
V. Early modern capitalism and the expansion of Europe.
VI. The moral thought of the humanist renaissance.
VII. The reformation and national churches.
VIII. The development of modern science.
IX. The elaboration of the sovereign state.
X. Absolutism and constitutionalism: the British experience.
XI. The enlightenment: background and ideals.
XII. The enlightenment: knowledge and morality.
XIII. The enlightenment: religion.
XIV. The enlightenment: politics and economics.

The chapter headings of the latest edition (1961) of the second volume are:

I. The French revolution.
II. The reconstruction of European society.
III. The advance of industrialization.
IV. Programs for reform.
V. The growth of socialism.
VI. Religion and ethics in the age of Darwin.
VII. Big business and its critics.
VIII. Politics in the unified nation state.
IX. Imperialism after 1870.
X. Reappraising the nineteenth century.

In 1941 source reading and background materials were published in separate fascicles, each corresponding to a topical subdivision of the course. The 1946 edition of CC-A followed five years of class-room testing, and each document assigned a place had to fulfil certain criteria or be replaced: it must be challenging,

historically important or representative, unmistakably pertinent to a given phase of the study, intelligible, and so edited as not to mislead. It must be a reasonably, full selection, not a tiny excerpt. The value of source readings is that the ideas and the struggles of the past are encountered by the students in the words of the very person or document that contributed to them or mirrored them. In his first day in the classroom the freshman is immersed in the very materials on which historians rely to write their histories. Personal observation in a class-room soon shows that freshmen can grapple successfully with difficult masterpieces of world literature. It was the humanities course which, said Hawkes, 'opened our eyes to the fact that college freshmen do not need to be fed predigested food'. From 1948, the source material was supplemented by two volumes called Chapters in western civilization. [Columbia, CWC, 1961/2] These provide 25 essays by distinguished writers in America, England and France on the content of the course, which is known as 'Development of western institutions and social ideas'. Students are given details of 'outline and assignments' showing what pages of CC-A and CWC must be read each week. Classes are conducted in small groups, and they are essentially discussion groups. Each semester there are two general written examinations, one mid-term of one hour in length, and a final at the end of the semester. A regular written essay is also required between mid-term and the end of each semester. There is also a quarter examination in A1, and instructors administer short quizzes throughout the course. A copy of a CC-A final examination appears at the end of this chapter.

The second-year course is known as Man in contemporary society, and is based on two volumes of this name. [Columbia, CC-B, 1955] The chapter headings of the first and second volumes are:

Man, mind and culture.

1. The cultural context of human nature.
2. The human aspect of the human animal.
3. Culture: its diversities and uniformities.

Self, person, and society.

1. The self.
2. The person.
3. Individual fulfillment and social compulsion.

The anatomy of society: community and polity.

1. Concepts of community.
2. Bases for polity: custom, law, and authority.
3. Divisive and unifying factors in modern community.
4. Ideal values of a democratic polity.
5. Inherent complexities of contemporary democracy.

The anatomy of society: economy.

1. Technology and industrial society.
2. Work and wealth: motivations in social economy.
3. The categories of economic understanding.
4. Political economy: proportioning welfare, freedom, and control.

Contemporary civilization: its predicaments.

1. Civilization and crisis.
2. Violence and the socialization of fear.
3. The widening circle of upheaval.

Contemporary civilization: its moral commitment.

1. The context of moral life.
2. Possibilities of moral growth.
3. In pursuit of a moral ideal.

The history of CC-A and CC-B: from 1919 to the present.

The virility of the CC courses stems from the fact that they are constantly being revised. CC-A, for example, has seen three editions in 1946, 1954 and 1960/1. The present edition (1961/2) of CVC is almost entirely a new work; only one chapter from earlier editions and small parts of two other chapters have been retained. Attendance at the weekly luncheon meetings of the CC staff (and of 'Humanities' staff) shows what opportunities are given regularly for discussion, and possible changes of these courses. "C.C. was literally born revising itself. There has always been and there always will be a C.C. Revision Committee. For the purpose of revision is to keep pace with scholarly development and the alteration of historical perspective, as well as to perfect teaching techniques." [Buchler, 1954, p. 57]

Dean Emeritus Harry J. Carman[pc] has been associated with the CC course since 1917. In that year Herbert E. Hawkes[1] became Acting Dean. Carman[2] describes how he and others went to Hawkes to ask him to change the required courses in history, philosophy and economics, which were 'pockets of knowledge with no interrelation' into one course dealing with the large fundamental

---

1. Acting Dean 1917-1919; Dean 1919-1943.
2. Dean 1943-1950.

problems facing the U.S. at the time. Hawkes discussed this with his colleagues, and ultimately obtained agreement from all members of the faculty except for about five of the older conservatives. The proposed peace-time course, some feared, would be 'superficial','impossible to administer', 'a threat to scholarship', -- objections not unknown today in South Africa and Britain. In 1917, Columbia College by government request organized a course in 'War issues', and this became in 1919 a course, compulsory for all freshmen called 'Peace issues', and this turned directly into the course in 'Contemporary civilization'. The interdisciplinary nature of the course was inevitable from the start. A course covering the wide field of war issues or peace issues was too complex for any one department, whether of history, philosophy, economics or political science, to organize. At the same time Professor John Erskine was "working out a number of ideas about the presentation of great authors and their works to young people, normally and properly occupied with contemporary life." From Erskine's emphasis on 'great books' came much later the present humanities course -- in point of fact in 1937, and this was after the Science A and B courses commenced in 1934.

The influence of John Dewey with his emphasis on the need for continuity between the student's total experience and the segment of it called his education is evident. In point of fact he did not directly participate in the planning of the College's foundational curriculum, but many of the teachers in the College had been his students. The fertile idea of the continuity of education and experience, of learning and life, of one discipline with other disciplines, is central to the Columbia process of liberal education and to the conviction, long held at Morningside, that the principal obligation of the college is to help develop the student into a more complete human being. It must always be recognized that the CC program meant a decisive renunciation of departmental parochialism, and an abandonment once and for all of the provincial interests that divided and can still divide the academic community. [Buchler, 1954, pp. 48 - 54]

Buchler's admirable A history of Columbia College at Morningside, though written in 1954, contains the best statement of the CC course and of the roots and

traits of the present. [Ibid., pp. 99 - 112] "The rationale of C.C., then and now, might be restated in this way: There are certain fundamental problems and materials and ideas which, in the present generation of man, are insistent, compelling; they cannot be dissociated from the past, in which they have their roots -- from other issues which are persistent; and since the student, like every other individual human, exists not as a discrete atom but in a highly complex environment, it is important for him to discern and absorb such materials -- first, because they are indispensable in further study, and second, because they are means to reflection and action in society." Buchler here underlines words emphasized in the 1919-20 college announcement.

The freshman year CC-A deals primarily with the making of the present. In the sophomore year CC-B covers mainly the character of the present. 'Contemporary civilization' has had to be qualified with the words 'in the West' largely because of the small number of men versed in Eastern culture.[1] CC has three important functions, said Hawkes: orientation, co-ordination, and thorough preparation for future scholarly work. Critics, said Hawkes, who talked as though CC provided only an orientation towards, or a survey of, economics, political science and philosophy ignored the second and third purposes. Buchler says: "If there is one thing that C.C. develops in its students and in its instructors, it is the realization that human affairs (like natural events) are far more complex than they seem; that human thought and action defy strict compartmentalization; that the theoretical disciplines overlap and interpenetrate; and that the solution of problems is retarded by preconceived notions of what constitutes the relevant data. For the student who is a potential specialist, this is not only a safeguard or corrective against unimaginative and insular scholarship but a stimulus to humility and quest. For the general student, it is the basis of the habit of critical thinking and of the sense of interconnectedness in human issues." [p. 103]

In 1929 CC-B was introduced. The course had drawn most heavily on the staff of the departments of history,

---

1. There is also available a general education program in oriental studies. See p. 94.

philosophy, economics, and government.[1] CC-A stressed history and philosophy, and concentrated on the European scene. CC-B was thus planned to meet the needs of the departments of economics and government, and stressed the American scene.

From the thirties CC-B has been subjected to much criticism. It appeared to lack unity. There was insufficient continuity between CC-A and CC-B. CC-B did not provide the intellectual excitement and promise of CC-A. Freshmen who had been aroused by the reading and discussion of Aquinas and Luther, of Hobbes and Locke, of Adam Smith and Karl Marx, proceeded in their sophomore year to predominantly descriptive investigation of the money and credit system, of consumer cooperation, or of international economic relations. CC-B had based itself on the organization of problems relating to one or two subject matters rather than on an interdisciplinary structure. Year after year sophomores volunteered the opinion, in large numbers, that the second year of CC was an anticlimax; and year after year the senior class voted that, as CC-A had been one of their outstanding experiences, CC-B had been one of their dullest. [p. 108]

To pass to the present -- CC-B has been made voluntary, and is no longer a compulsory course. This seemed to many observers of general education as momentous as the abdication of a King. Dean Burchard came as near to headlines as a Dean ever does in his 1961 report. [p. 33] He asks, in capitals: A NATIONAL CRISIS IN GENERAL EDUCATION? In personal correspondence, the Director of the Contemporary Civilization Program, Professor Robert K. Webb, said: "..... we are not abandoning general education. That rumour, is I am sorry to say, fairly widespread. We are supplying a number of alternative ways of satisfying the requirement, including a course in oriental civilizations. The old second-year course has remained one of the options and I am happy to say that it seems to be prospering."

Dean John G. Palfrey gave the following reasons for this step. It was becoming increasingly difficult to obtain enough staff from the various departments for 60 sections of CC-A and CC-B, and 42 sections of H-A

---

1. It still does. Other departments, which provide staff, are anthropology, religion and sociology.

and H-B. The possibility was considered of postponing and recasting CC-B, and to offer it in the senior year as one of several electives on the intellectual history of the twentieth century. CC-A could be appropriately staffed, and a senior colloquium on the twentieth century would be a challenge that would attract faculty members in the sciences as well as in the non-science departments. Three years would thus be made available for major-concentration. Students would still have to elect one among several courses in the senior year of an interpretative and inter-disciplinary nature -- a colloquium on contemporary civilization, a course in the history and philosophy of science, or a seminar in science and society. [Palfrey, 1959, pp. 14, 15]

2.54. Humanities A and B.

Humanities was born in 1937 with even greater travail than CC, after several years of labour. After much hesitant deliberation a four-semester course was introduced in the lower college, collaboratively organized with staff members from the departments of English and comparative literature, classical and modern languages, philosophy, fine arts and music.[1]

The content of H-A.

Humanities A concerned itself with outstanding masterpieces in the literature and philosophy of the European tradition. Humanities B, optional until 1947, concerned itself with the development of awareness and sensibility in music and the visual arts. Humanities A classes from the first resembled those of CC -- about twenty-five students, constituting a discussion group with one instructor who continued with it throughout the year. From the Erskine 'general honors' tradition (born in 1920) it took the emphasis on great works of literary art and thought, read usually in their entirety; from the CC tradition (1919) it borrowed its version of the method of discussion, organization, and inter-departmental collaboration. [Buchler, 1945, p. 75]

Erskine found the academic men of his generation bemoaning the literary ignorance of the young. True, a student might take a course in English literature;

---

1. The following other departments participate now: Chinese and Japanese, Near and Middle East languages, Religion.

he might take one also in French literature. But how many languages was he to learn? And what existing courses in college departments would enable him to read and study the Bible or Homer or Dante? Some new college technique was needed, and he was prepared to bypass the traditional academic framework. He had other opposition. How could students acquire 'real understanding' of so many works read in so short a time and usually in a language other than that in which they were written? Buchler concludes: "It was as easy for Erskine to demolish the opposition then as it is for us now, and it is as difficult for us to expect unanimity now as it was for him then." [Ibid., p. 113] He quotes Erskine: "I reminded my colleagues that the Iliad and most other epics were shorter than the average novel, and many of our students read at least one popular novel every seven days ..... then engage in hot debate about it. Why not treat the Iliad, the Odyssey, and other masterpieces as though they were recent publications, calling for immediate investigation and discussion?"

The student during two years of study of the humanities comes face to face with invention at its highest and deepest. He supersedes, as Professor Barzun put it years ago, the level of stock phrases, catchy epithets, and secondhand descriptions; he has 'fed his soul' upon great books, great music and great pictures. His power of communication has been strengthened by his absorption of rich materials, with which and about which to communicate. The business of the foundational curriculum at Columbia is "not so much to educate as to start self-education. Freshmen are not expected to get what they should out of Plato, but what they can. Who indeed shall say what any man must get out of Plato?" [Ibid., p. 119]

Humanities B -- fine arts.

Seldom are the fine arts and music made compulsory parts of a general education program. In New York, with unparalleled opportunities for music and art, the Columbia emphasis can well be understood. As in humanities A, humanities B (fine arts) deals with a limited number of topics. Examples are the architecture and sculpture of the Parthenon and of Amiens Cathedral, the paintings of Raphael, Rembrandt, and Picasso, and

the sculpture of Michaelangelo. No attempt is made to be exhaustive in any topic; thus only a few of Rembrandt's paintings are selected. The course does not aim to provide a history of art. No attempt is made to sketch in even the briefest manner the art of the centuries which intervene between one topic and the next. However, since the problems faced by Bernini in sculpture were themselves conditioned by the ideals and ideas of his day, the student must try and recognize the imprint of these ideals in the works themselves. For this purpose, wherever possible, parallels are drawn to the work in H-A or CC-A.

The course is based on two premises. The first is, in the language of Ruskin, that 'art is a noble and expressive language'. If it is a language it must be intended to communicate something -- presumably the ideals and interests of the artist and his age and place. It must, therefore, be capable of being read and understood if examined thoughtfully. In order to reach such understanding, the second premise is essential: that the students, and for that matter literate people of any age, have become so accustomed to receiving information only through the printed or spoken word that they never really look at anything, despite the Chinese proverb that one picture is worth a thousand words. They see, but they do not look.

The purpose then of humanities B is to open their eyes and to compel them to use their minds on what they see. Since the course concerns visual material, its text must be visual -- a selection of inexpensive illustrations of the topics covered. This is amplified by successive exhibitions of additional photographic material, involving searching questions of a comparative nature. Toward the end of the semester, the students are sent to examine selected original paintings or works of sculpture at the Metropolitan Museum, the Frick Gallery, and the Museum of Modern Art. Reading is assigned, but its role is secondary to serve as general background to the periods that produced the works of art to be considered. The general education courses at Columbia College have in common a complete reliance on documents and a corollary indifference to secondary material. The painting, statue, or building itself is

the important thing. In fact it is essential that the students should discover the form and content of the works themselves, without having their ideas shaped beforehand by even the most penetrating written analysis.

In order to exercise the students along these lines in addition to their work in class, two brief papers are assigned. These usually involve a comparative analysis of paintings or other original works of art (as distinct from reproductions) to be found in New York. Typical subjects are comparisons of Breughel's Harvesters and Monet's Seine at Vetheuil; El Greco's Nino de Guevara and Charpentier's Charlotte de Val d'Ognes; the archaic 'Apollo' and the Diadumenos at the Metropolitan; or an analysis of the architectural lay-out of the Columbia campus.

That the course does achieve its purpose at least in part is suggested by the frequency with which recalcitrant students -- usually pre-engineers or scientists -- reverse their point of view from resentment to enthusiasm as the course progresses. Secondly, it has been the normal experience of the staff to learn something from the students. Their fresh eyes occasionally see some points and their alert minds conceive valid explanations that have hitherto escaped the attention of their teachers.

Humanities B -- music.

Humanities A and B are each semester courses. The fine arts course has been described very fully, because although both are unusual as compulsory subjects, the arts course is encountered less frequently than the music course.

The topics of the course are: structure and style in music, music of the renaissance, music of the baroque, music of the classical era (symphony and concerto, chamber music, opera and oratorio), music of the romantic era (including German and Italian opera) and music of the twentieth century. Students are required each week to read from prescribed books and reference books, and to attend two listening programs. These are each presented four times a week at different times. Musical scores are available in the college library.

No general education course better illustrates the

'selected high-lights' method. Music from the 12th to the 20th centuries is spanned in sixteen weeks. The topics studied demand and receive thorough treatment. The important point however is that it cannot be doubted that any student who wished to teach himself about periods and composers not referred to in the course could do so with ease at the end of the course.

2.55. A history of general education courses in mathematics and science.

Erskine's 'honors' course was started in 1920, and developed into 'humanities' in 1937. Science A and science B were born before 1937. As early as 1923 a course in the history of science was given to sophomores. But this type of course was in no way analagous to CC. In 1933, Dean Hawkes appointed a committee to report on a foundational offering in science. It recommended a course which afforded a wider view of scientific subject-matter than is possible by a study of only one or two of the sciences. It was not to be merely an introductory course for those who proposed to specialize in the field of science. A two-year course was started in 1934, science A and science B, but it was discontinued in 1941 when world war II diverted the scientific facilities of the university. Associate Dean John W. Alexander spoke[pc] of such a course, which consisted of one-quarter each of physics, chemistry, zoology and botany, given by four different men, all demanding more time! It is little wonder that such a scheme was not successful.

A 1945 committee recommended that the general education science course should be staffed by men prepared to give competent instruction in all of it. It was not to be reserved for non-specialists, but to be mandatory for all freshmen. Those going on in science and those not going on alike could profit from it. But a 1948 committee found the difficulties insuperable. Staff could not be found, and the 'pre-professional' requirements of the departments were too demanding to allow of their freshmen undertaking this course. Demonstration experiments were to take the place of laboratory work by students.

Economic inflation however hit the university at this time, and it was decided that the course was to be introduced later as an optional requirement, at the

earliest possible opportunity. Carman often talked of a tripod stool which needed three legs to stand. There has always been, and there still is, a science leg at Columbia, but it looks very different from the other two, having no general education appearance! The root cause is that general education has always been staffed at Columbia by the departments (i.e. not by a separate general education staff), and the scientific departments, more than any others, are essentially specialist in nature, and very powerful too at a time when their researchers and their students alike are in great demand. It must be remembered and frankly admitted that general education courses in the humanities and social sciences provide a good preparation for those going on to specialize in one of these fields, but the same is not true about general courses in science for science majors.

Dean John Palfrey shows in his 1959 report that the problem is still a live issue, but his solution sounds like a counsel of despair -- "do more science in the schools!" He says that one of the difficulties is that colleges have not defined sharply enough what they would like and are best fitted to accomplish. Most of them require courses in science for the undergraduate, and then sit back and hope for the best. The present Columbia plan -- two one-year studies of normal departmental offerings -- makes little provision for laboratory work, and provides no contact with the enthusiasm and talents of students going on to specialize in science. The departments want courses <u>in</u> science, not courses <u>about</u> science -- in general education, in history and in philosophy.

Certainly the Advanced Placement Program of the College Entrance Examination Board is making it possible for some college work to be done in school. But this is no real solution as is shown later on page 378. Real integration demands a maturity beyond that of the schoolboy, and indeed Palfrey himself asks whether some part of the <u>final</u> year in college should not be devoted to integration.

2.56. <u>The Columbia College program in oriental studies.</u>

This program covers two courses: oriental humanities, dealing with great works of literature,

philosophy and religion; and oriental civilizations, treating the historical development of oriental civilization with a view to understanding current trends. Both courses are intended to be complementary to the general education courses CC-A and H-A, and are open to all students. Knowledge of oriental languages is not required or expected. Translations from the classical and modern languages of China, Japan, and India into English, some unavailable until recently, are used.

The course commenced under the title 'Oriental colloquium' in 1948. 'Oriental civilizations'(35-36) aims to provide an understanding of the more important factors in the contemporary life of the people of China, Japan, India and Pakistan, together with an appraisal of their role in the world today. General histories are available, but the committee developing the course has had to prepare its own source readings. Three volumes provide access in English to the traditional and modern thought of the civilizations of China, Japan and India.

Oriental humanities (39-40) aims to give the student a close acquaintance with the classics, and to consider them as addressed not to certain orientals in a certain age, but to men of any place and age. The last thus includes outstanding writings in many literary forms -- novels, poems and plays. Literature of the Near East is also studied in the first semester, because of the influence of the Islamic and Persian scriptures on Indian thought.

2.57. Some personal impressions.

In spite of staff difficulties mentioned above, the impression is gained that Columbia College has relatively little trouble in this respect. "Teaching in the College is no longer regarded as a tour of duties for a rising instructor to complete as soon as possible. Members of the College faculty, as they gain tenure or become members of the graduate faculties, continue to teach two-thirds or at least one-third of their time in the College. Terms of new appointments in the graduate faculties are likely to include an expectation of teaching in the College. More senior professors in the graduate faculties are participating for the first time in College courses and seminars."

Palfrey [1959, pp. 13, 14] believes that the success of Columbia's CC and H programs is due principally to the refusal to establish a separate department or division of general education.

Nevertheless Barzun described in 1945 [ch.14] the bad influence of the Ph.D. octopus about which William James had written so eloquently early in the century. "James was inspired when he spoke of an octopus: that describes its flabbiness, its ubiquity, and the squirting of ink which is its main reflex." The Ph.D. has become the union card of the American college teacher. The Ph.D. is taken for granted, and this is shown by the fact that one seldom speaks of the dissertation that earned it. Research is encouraged, and publication expected: rewards for good teaching are few. In a 1959 edition of Teacher in America, his views are unchanged. This then is a very real problem, and one to be reckoned with. Like M.I.T., Columbia College has a fund which makes it possible for young instructors to take leave from teaching and to permit them to pursue scholarly research through the award of Chamberlain Fellowships.

Columbia College does not have the advantage with respect to general education of having a large fraction of its students in residence. Columbia has recently built Ferris Booth Hall and a student dormitory. "Ferris Booth Hall was designed to be more than a building to house student activities and a center for student affairs at Columbia College ..... The challenge ..... is that of finding a way to develop in the undergraduates, as part of their college experience, a greater sense of obligation and responsibility to the community ..... Citizenship is not, however, an area of learning: it is an end result -- a quality of person, not a subject of instruction, which an education in the liberal arts is likely to nurture but not insure." Columbia recognizes its obligations to supply the prerequisites, but Dean Chamberlain (1950 - 1957) and Dean Palfrey have both insisted that the citizenship program be left to the students. [Palfrey, 1959, pp. 18, 19]

Dr. Lawrence H. Chamberlain relinquished the deanship in 1957 to become Professor of Human Relations. He said in 1960[pc] that he had recently made a wide

tour of the United States, and had found the enthusiasm for general education as great as ever. A constant watch, he insisted, must be kept on academic standards. General education, to prosper, must demand rigour. 'Core' courses should be constantly examined and evaluated to ensure that they did not lead to superficiality. He believed that the CC and H courses were good, but he thought it dangerous to take this for granted; it could become fashionable to sing their praises.

He concluded with a statement from a paper in the course of preparation. "There is no desire here to question the liberating value of a genuinely liberal education -- for those to whom it has meaning. No one who has taught in college and enjoyed the truly inspiring experience of watching students catch fire from their discovery of great minds and provocative ideas can fail to wish that every student capable of sharing this experience should have the opportunity."

2.6. THE COLLEGE OF THE UNIVERSITY OF CHICAGO.

The content of general education may be considered in terms either of the programs of various university institutions, or in terms of the four main academic fields involved. This chapter has dealt with the former (Harvard College, M.I.T., Yale College and Columbia College, one by one) in terms of the latter. The next chapter will deal with the latter (the humanities, the social sciences, the natural sciences, and communication, in turn) in terms of two other colleges: the College of the University of Chicago, and the University College of Michigan State University -- one a private university, and the other a state university.

Some background information about each must first be given in this chapter.

2.61. Some historical comments.

The history of the College of the University of Chicago is dealt with fully by Reuben Frodin in The idea and practice of general education. [Faust, 1950, ch. 2] The first president, William Rainey Harper

(1890 - 1906), in a bulletin written before the new university opened, divided the work of the four undergraduate years into two units: the freshman and sophomore years, called the Academic Colleges, and subsequently the Junior Colleges; and the junior and senior years, called the University Colleges, and subsequently the Senior Colleges. In 1930 the faculty adopted the plan to create five Divisions: Biological sciences, Physical sciences, Social sciences, Humanities, and the College. The name 'College of the University of Chicago' henceforth signified that branch of the University specifically charged with the administration of, and instruction in, general education. From the foundation of the University, however, the aim of the Junior Colleges was general education. It is important to note here that in 1932 the last two years of the University High School were incorporated into the College by removing them from the jurisdiction of the Department of Education.

The history of the College is complex[1] with a constant battle, backwards and forwards, between the Divisions and the College: the details of this struggle are not of relevance here. What is important to note is the grouping of the last two years of high school, and the first two years of college into one unit, and this is more fully dealt with in section 2.64 below.

The staff of the College had been drawn from the faculties of the four upper Divisions, but in 1932 the Dean was empowered to make his own appointments. This administrative reorganization was the first instance in which an American university separated, in a legal sense, the offices of instruction responsible for general education from those responsible for education in specialized fields. It can be readily understood therefore why Chicago has had great influence on general education in the last thirty years. Indeed the general course in the natural sciences called 'The nature of the world and man' was started as early as 1924, and like Columbia's 'Contemporary civilization', widely influenced curricular reconstruction in other institutions. [Thomas, 1960, pp. 83, 84, 69]

---

1. See [Hutchins, 1944, ch. 4], [Faust, 1950, ch. 2], [Thomas, 1960, pp. 83 - 87], and [Fisher, 1960, ch. 10]

Robert Maynard Hutchins was President of the University from 1929 to 1951. (The position was renamed 'Chancellor' in 1945). His emphasis on the intellectual aims of education persists today in the College. General education for him meant breadth intellectually. Antioch College, by contrast, emphasizes the College's and the students' service to society (without detracting from high academic standards, it must be added. (See page 288.) He was responsible for initiating the administrative changes described above, and they entrenched general education firmly.

At the same time some radical curricular revisions were introduced. Comprehensive examinations (i.e. on a whole sequence, not on a quarter's work) are still a feature of Chicago College. Placement tests were introduced to establish a student's level in a subject, to avoid repetition of work done, and to ensure adequate preparation for courses to come. The comprehensive examinations could be taken at any time a student was ready for them. Course credits were not, and are not now, the criterion of academic progress. [Ibid., pp. 85, 86] As early as 1927, President Mason had "publicly questioned the desirability of continuing the slavish adherence to course units and course credits as the basis of awarding degrees -- the now widely condemned 'academic bookkeeping' by which intelligence and progress are bought and sold across the American collegiate counter." [Faust, 1950, p. 46]

Such was the lead Chicago gave in the nation-wide reaction against the abuses of the elective system and the dangers of over-specialization.

2.62. The aims of the College.

These have been clearly stated by Dr. Clarence H. Faust, Dean from 1941 to 1947 [1950, pp. 6, 7, 13] in his opening chapter to The idea and practice of general education, a study of Chicago College. The function of the American liberal arts college is

> "to deal not with the special problems parceled out in our society to the members of various occupations and professions -- to the chemist and the carpenter, the architect and the accountant, the doctor, the merchant, and the housewife -- but with the problems which confront all members of our society alike, such problems as our domestic and foreign policies,

> our political leadership, our individual relations with the physical universe, our personal philosophies. General education appears from this point of view to be the preparation of youth to deal with the personal and social problems with which all men in a democratic society are confronted."
>
> "This is in many respects a task of great importance and of extraordinary difficulty. It is important because the course that this nation takes in both domestic and international affairs is determined by the judgments of its citizens, however far it may seem at moments to slip from their control; and whether the course it takes is wise and good or foolish and evil will be determined ultimately by the quality of judgment that our citizens exercise. It is therefore one of the most important functions of general education to prepare people to exercise wisely the power which will be thrust upon them as citizens of a democracy. General education cannot provide young people with ready answers for all political and social problems. For one thing, we do not possess satisfactory answers for some of the most important of them. Nor, if we did possess them, should they be simply imposed upon each new generation. General education must undertake, therefore, to prepare people to think profitably for themselves."

In the most recent announcements [Chicago, 1962-63, pp. 11 - 41], the emphasis of the last thirty years on general education is strongly evident. It is first established that the primary purpose of education is intellectual -- to enable students to think, to analyze, and to arrive at independent judgments. But there must be some common elements, as Faust insists, in the education of Chicago undergraduates, and so each must spend two years studying courses in the natural sciences, the humanities, the social sciences, the history of western civilization, mathematics, a foreign language, and English composition. To this is added a year of elective choices and a year of specialization. Elective choices are 'guided' to prevent indiscriminate mixture or unplanned sampling.

The views[pc] of the Dean of the College, Dr. Alan Simpson, are of especial interest, as he had been a student at Oxford "where I read History. Period!" He had also seen the broader education of a Scottish university at St. Andrews. He elaborated the points made in the announcements of the College. He was convinced that general education courses could be

rigorous. Oxford, he said, assumed that a man's general education could be completed at school and in his home, but he insisted that, in America, schools did not provide all the general education needed, and in England with highly specialized curricula they provided little or none. The percentage of homes in America and England which could be relied upon to provide a rich cultural background, or any general education at all, was small.

Dean Simpson [1961] states that of all the great universities, Chicago maintains the most systematic and ambitious commitment to general education. "As evidence of this claim, I offer the following five features which emerge from any comparison between our arrangements and those of other institutions.

1. We demand more breadth. An undergraduate at Harvard can satisfy his humanities requirement with a general education course in literature without glancing at music or art; his natural science requirement with courses in either physical sciences or biology, without any mathematics; his social science requirement by a general education course in either history, or anthropology and psychology, or law.

At Chicago we still require all students either to take or to place out of the following basic subjects: humanities, social sciences, physical sciences, biological sciences, history, English, mathematics, and foreign language.

2. We demand more rigor. It is a simple fact that we demand more breadth than other institutions. That we demand more rigor is a boast, but it is a claim which says something important about us. In our choice of topics, our selection of original materials, our emphasis on discussion, and our construction of examinations, we do everything in our power to develop an acute critical faculty. The capacity to deal with ideas in a spirit of free and vigorous inquiry is the characteristic hallmark of a Chicago education.

3. We organize our general education courses on more uniform principles, e.g., with very few exceptions all our general education courses are staff taught.

4. We extend the same type of course into the

elective area, e.g. O.M.P., the courses in non-Western civilizations, and the projected course in religious traditions.

5. We protect this kind of general education through an independent budget and an appropriate system of appointments and promotions."

2.63. The college curriculum following the 1958 revision.

Twenty-nine 'quarter-units' are provided in general education, and students must demonstrate their competence in twenty-four by placement tests or by the comprehensive examinations. Students who have less than twenty-four courses to complete may either study others (enrichment), or finish their degrees in under four years (acceleration). There is usually one lecture period per week in most courses, often given by one of the distinguished specialists of the university. For the rest, students must, by means of independent work, prepare themselves for small seminar-type class discussions.

No collection of courses, largely unrelated, in individual subjects will provide the necessary common critical understanding of the major fields of human knowledge and their interrelationships. Unlike Yale, Chicago has developed a system of general courses that cut across many special fields, and by means of constant testing and improved revisions, has made careful selections of fundamental ideas in the biological and physical sciences, the social sciences, and the humanities. Placement tests in biology, English composition, foreign language, physical sciences, and mathematics determine whether the amount of instruction required is a two-quarter sequence or a three-quarter sequence. Similarly in the social sciences and the humanities, students may have to take a three-quarter, a five-quarter, or a six-quarter sequence. The requirement in 'History of western civilization' is a two-quarter sequence. Students with unusually excellent preparation may be excused entirely from any of these eight areas. Students may complete their required courses at any time, but they do so as a rule in the first two years. Each general course is

designed to constitute one-fourth of a year's full program.

The requirements for the Bachelor of Arts degree may be completed in three ways:

1. Concentration in one of the following four fields -- biology, the humanities, the physical sciences, and the social sciences.
2. A year of advanced general studies and a year of tutorial work on an individual project.
3. A year of advanced general studies and one year of study in the Graduate School of Business or the Graduate Library School.

The degree of Bachelor of Fine Arts is also provided. The degree of Bachelor of Science is offered jointly by the College and the Divisions of the Biological Sciences and of the Physical Sciences. Pre-medical students may enter the School of Medicine after completing (normally in three years and a summer) all except the departmental requirements for the Bachelor of Science degree. Bachelor's degrees can thus be obtained after one year in the School of Medicine, or Graduate School of Business, or Graduate Library School, following three years of work on common or advanced courses in general education. Students are also able to earn a Bachelor of Arts or a Bachelor of Science degree with professional preparation for teaching in four years or a little more, in cooperation with the School of Education. [Chicago, 1962-63, pp. 31, 32, 39, 40]

There are in the University four Divisions. (Biological Studies, including the School of Medicine, Humanities, Physical Sciences, and Social Sciences.) Reference has been made to four of the seven professional schools. The other three are the Divinity School, the Law School, and the School of Social Service Administration. [Ibid., pp. 41, 42] Surprisingly there are no facilities for professional qualification in engineering or architecture.

General Honors and Special Honors may be awarded for special distinction. The degree of Bachelor of Arts with Tutorial Studies needs elaboration here. Professor Russell Thomas is Director of the College Tutorial Program, and he describes it in these terms. [1960, pp. 205, 206n] "Students in the tutorial program at Chicago do not major in a special field. During their first two years, their program of general studies

is determined in exactly the same way as that of all other students in the college. In the third year, however, instead of devoting the major portion of time to a field of concentration, they continue a distribution of their studies in four fields: humanities, social science, natural science, and philosophy. Limited freedom in the choice of courses in each area is permitted. Each student must write a major essay in one of the four areas. During his third year, also, he is expected to choose a problem of some magnitude which will be the major object of his studies during his final year. When the topic has been chosen and approved by the council for advanced general studies, each student is assigned to a member of the faculty who will be his tutor and who will guide him in the writing of his tutorial essay, the major activity of the final year. With the advice of his tutor, he will register for three courses especially chosen for their relation to the subject of his tutorial essay. A written and an oral examination based on the field of his tutorial study completes his work. There is also available time for some free electives in the last two years."

2.64. To college after grade X.

High school graduation, and admission to college normally takes place in America after grade XII. But for some years Chicago College admitted students after grade X. It was noted above that in 1932, the proposal of President Hutchins to extend the work of the College in general education into the last two years of the University High School, under the jurisdiction of the College faculty was approved by the Senate. There was, however, opposition to the four-year unit from the start from the College faculty, who felt they might become no more than high school teachers, and there were also inevitable disagreements about the curriculum. Parents had to pay college fees two years earlier, and the students found themselves out of their age group with most of their friends still at high school. In any event only about half entered the College at 15: the rest were 17 or 18.

President Hutchins delivered the Storrs lectures at Yale University in 1936, published as The higher

learning in America, which included details of the curriculum he favoured [p. 85] It was to be "a course of study consisting of the greatest books of the western world and the arts of reading, writing, thinking, and speaking, together with mathematics, the best exemplar of the processes of human reason. If our hope has been to frame a curriculum which educes the elements of our common human nature, this program should realize our hope. If we wish to prepare the young for intelligent action, this course of study should assist us; for they will have learned what has been done in the past, and what the greatest men have thought. They will have learned how to think themselves. If we wish to lay a basis for advanced study, that basis is provided. If we wish to secure true universities, we may look forward to them, because students and professors may acquire through this course of study a common stock of ideas and common methods of dealing with them. All the needs of general education in America seem to be satisfied by this curriculum."

Classes ultimately commenced in 1937, and after an intense battle in the Senate, it was decided in 1942 to support the President's proposal that a Bachelor's degree be awarded.[1] The course allowed of no electives and no specialization. Its ultimate content was:

First year	Second year
Social sciences I	Social sciences 2
Humanities I	Humanities 2
Natural sciences 1	Natural sciences 2
English	Mathematics
Third year	**Fourth year**
Social sciences 3	History
Humanities 3	Observation, Interpretation, and Integration.
Natural sciences 3	
Foreign language	

[Faust, 1950, pp. 53 - 85]

Professor Kalven (Law) told[pc] of his own undergraduate days as a Chicago College student following this course. It was 'a very worthwhile experience,' he said. It provided a wide survey of human knowledge: it was 'education for the sake of education' with no vocational overtones. He mentioned a real estate man who dealt in millions, who insisted that this program

---

1. ..... in effect, 4 years after grade X in high school. The Master's degree would now take 3 more years.

had been the most exciting experience of his life.

The practice has now fallen away, in the above form. After 1954 the Bachelor of Arts degree was restored to the position which it held before 1942. Dean Alan Simpson[pc] is of the opinion that the course was 'too general'. It appears that general education must always be seen in the context of the special, and specialization needs to be pursued in the context of general education. (See the description of the Bell Telephone course at the University of Pennsylvania on page 11: this failed for the same reason that it was 'too general,' in the opinion of Dean Howard Johnson[pc] of M.I.T.). Nevertheless Dr. Clarence Faust[pc] believes that the scheme has merit for today. The College indeed has now no fixed pre-requisites of secondary school study for admission, and secondary school students with superior ability, and the maturity to live the independent life the college assumes may be admitted after grade X or grade XI. Early entrances comprise about 5 per cent of freshmen classes. Their admission standards are, in terms of aptitude, the same as they are for high school graduates. [Chicago, 1962-63, pp. 29, 154, 155]

This procedure has been described here not so much because of its unusual nature, nor in an attempt to give a complete history of Chicago College. The integration of general education at school and college is a question of fundamental importance, and it is discussed in chapter 8. Reference is made there to this section. Reference will also be made there to the experiment of the Fund for the Advancement of Education, through which in 1951, eleven American colleges and universities opened their doors to 420 freshmen, who were roughly two years below average in age, and only a few of whom had finished high school. Altogether in the years 1951 to 1954, 1,350 students were admitted 'early' to twelve colleges under this scheme. [Ford, 1957, p. 7]

The related question of 'advanced placement' is also discussed in chapter 8. The Chicago experiment of the 40's was designed to develop the potentialities of the abler high school student by sending him to college two years earlier. 'Advanced placement' programs, on the other hand, put more senior work than usual into the schools to meet the needs of the bright pupil. He may

then be exempted from some college courses (acceleration), or substitute others for which he would not normally have found time (enrichment). [Haun, 1960, pp. 48, 49] This latter program appears to be gaining ascendance over the former. It too was supported by the Fund for the Advancement of Education. [Ford, 1957, p. 4]

2.7. THE UNIVERSITY COLLEGE OF MICHIGAN STATE UNIVERSITY.

2.71. Michigan State University.

Michigan State University consists of the following Colleges: Agriculture (1214), Arts and Letters, Business (3760), Communication Arts (670), Education (4026), Engineering (1813), Home Economics (747), Natural Science, Social Science, Veterinary Medicine (424), and the University College. The figures in brackets represent enrolments in 1958/59. The Colleges of Arts and Letters, Natural Science, and Social Science, were at that time one College of Science and Arts with an enrolment of 3296. The latest enrolment figures [Michigan, 1962-63, p. 12] give a total of about 26,000, of which 23,000 were enrolled on the East Lansing campus. Of these 18,800 are undergraduates. These figures are important in that they reveal the extent to which land-grant colleges are still predominately undergraduate institutions. This in no way detracts from the importance of their graduate services. [Thomas, 1960, p. 170]

2.72. University College.

All freshmen enrol in University College (known before 1960 as the Basic College) and all study the following four courses: American thought and language (111/2/3), humanities (241/2/3), natural science (181/2/3), and social science (231/2/3). This represents 45 credits out of the minimum of 192 required for graduation, and is roughly one year's work in four.

Freshmen enrol in both the University College and the College of their choice, and must meet all University College requirements before they are allowed to graduate.

The courses in 'American thought and language' and natural science are usually taken in the freshman year,

social sciences in the freshman or sophomore year, and humanities in the sophomore or junior year. Admission to the university is open to students of accredited high schools, if their records meet the 'college-recommending mark' as designated by Michigan high schools.

Provision is made for one-term 'improvement courses' in English language (primarily for foreign students), reading, writing, speech, and arithmetic. Thomas [1960, p. 173] does point out "the absurdity of the fact that a great university is obliged to offer courses in arithmetic and elementary algebra to some of its students." Students who prove academically deficient may be asked to withdraw. Bright students, on the other hand, may obtain exemption from certain requirements.

The balance of students' time in the two years in the University College is taken up with prerequisites for major programs, of which there are about 100. The College allows for a two-year terminal program for students not wishing to proceed further. They must pass in the 3 of the 4 required subjects, and obtain 92 credits.

University College is an autonomous college, and its administrative plan was influenced by the University of Chicago which in 1931 had given its College autonomy, and responsibility for general education. The Basic College was formed in 1944 to eliminate some of the inconsistencies and inequities resulting from variations in the common or general requirements for a degree. [Thomas, 1960, p. 171]

In 1944 the Basic College was composed of seven departments offering courses entitled biological science, physical science, social science, written and spoken English, history of civilization, literature and fine arts, and effective living, of which, English and three others were required -- biological or physical science, literature and fine arts or history of civilization, social science or effective living.

In 1952 these courses were reduced to the present four. The purpose of the change was to provide some common core, for all students, in place of the modified elective plan of 1944. [Carlin, 1960, ch. 1]

Thomas points out two problems, the first not peculiar to Michigan State University. "It occurs in

every university of the country that is now admitting freshman classes which number in the thousands. In aptitude, previous academic experience, individual interests, and capacities for self-discipline, the ranges of difference will inevitably be great. The task of providing adequate instruction is staggering and one that may easily have more serious consequences for general education than for specialized and professional education. The second problem is the attainment of a satisfactory conception of general education that will permit of sufficient flexibility to adjust to the wide variety of backgrounds and aptitudes without loss of curricular integrity. Michigan State's University College program admits of little flexibility; and the skeptical will say that one course in science or humanities cannot possibly be adapted to the needs of 4,000 freshmen. This depends upon how a course is defined and upon the provision made for varying methods of instruction. It may well be that there is not sufficient variety either in content or instructional methods in University College courses. It does not follow, however, that the alternatives most commonly proposed or employed achieve better results. The optional-course distributional plan which permits students to elect any one of several introductory courses in a science may offer a less comprehensive view of the nature and significance of science and its methods than the general course, and it is not certain that in overcrowded institutions, where it is difficult to find enough well-qualified teachers, the instruction will be superior." [Thomas, 1962, p. 176]

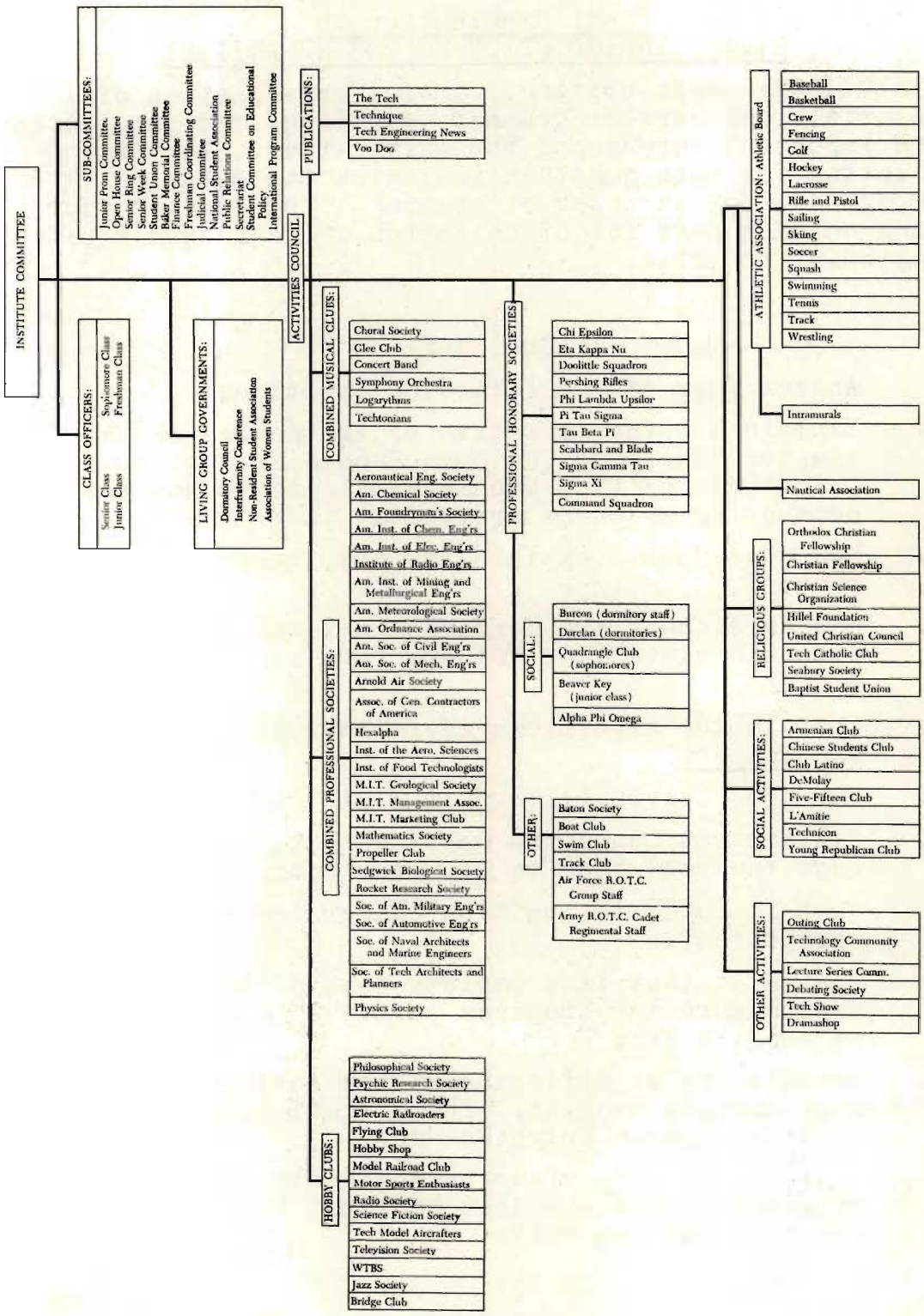
Another problem with such large numbers is consistency of marking examinations. For this purpose, objective multiple-choice questions are extensively used, allowing scoring by machine. (Instructors' marks are also used, and so too are essays). There is in fact an Office of Evaluation Services (formerly the Board of Examiners) for this purpose. The objective tests are prepared with very great thoroughness, and each is itself frequently tested through item analyses. In each test about one-third of the items will be the best items from previous tests to provide standards of comparison with

new items. These are not true-or-false tests, i.e. choice-of-two tests, where guessing would produce a score of 50%. Students are in fact not discouraged from guessing. If of five items, one or two have been rejected by a student, he has at least used his knowledge to narrow the number of possible answers to four or three. It is, of course, evident that a 20% score on such tests means no more than a blank answer book would mean in a normal type examination.

Ideally an objective test would have among its five foils (i) one which could be a random guess, (ii) one which could be chosen due to some frequent error; and three more which would be chosen, (iii) by a student partially informed, (iv) by a student having much but not complete information, and (v) only by a student who was completely informed.

Such tests may sound strange to British or South African ears but with 6000 students in 200 classes it would be difficult to obtain uniform standards otherwise. With a large number of instructors, only objective examinations prevent grades (marks) being dependent upon the likes and dislikes of particular instructors, and the feeling that it is easier to pass in one section than another. Students tend to seek out 'good' instructors, not 'easy' instructors. The objective test counts 50%, and the teacher's assessment 50%, and each serves as a check on the other. Essays are always independently marked by two persons, with an umpire if they disagree widely.

The Office of Evaluation Services provides consultant and expert advice to the four departments of University College for the construction and evaluation of examinations, and helps thus in the area of educational research. It is also concerned with the identification of student personnel problems which need attention.



M.I.T. student activities.

(For examination papers of the University College of North Staffordshire, Keele, see pages 232 to 235).

Saturday, May 28, 1960 Time: 1.30 - 4.30 P.M.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Final Examination in 21.02 INTRODUCTION TO THE HUMANITIES

DIRECTIONS: Neat writing, careful organization of material, and correct grammar, spelling, and punctuation are important throughout the examination. The time allotted for each question indicates its relative importance for purposes of grading. Use some of your time on each part for organization of your answer before beginning to write.

I
(One hour)

Answer four of the following questions:

1. Explain how the narrative of Agathocles in the chapter "On Those Who Have Become Princes by Crime" exemplifies Machiavelli's ideas and the methods by which he arrived at them.
2. How does Hobbes explain the origin of speech and reason?
3. How consistent are Montaigne's ideas on education with his claim that "Others form man; I describe him"?
4. What is the significance of the epilogue for The Tempest?
5. Why does Calvin believe in a visible church?
6. Explain why Descartes says that it is easier to know the soul than to know the body.
7. What is Luther's position concerning religious ceremonies?
8. Why is it that in a society devoted to the pursuit of pleasure the Utopians permit some men to lead an ascetic life?
9. Explain the significance of the following response for Pascal's thought: "The eternal silence of these infinite spaces frightens me."
10. What are Locke's views on the basis of ownership of property and how does he limit the amount of property one can own?

II
(One hour)

Select two of the following and write a thirty-minute essay on each. DO NOT write on both Luther and Calvin. DO NOT write on both Shakespeare topics.

1. The origin, meaning, and effect of doubt in the thought of Montaigne and Descartes.
2. Calvin's beliefs concerning the sources and extent of man's knowledge of God.

3. The meaning of Luther's description of the Christian man as "a perfectly free lord of all, subject to none", and "a perfectly dutiful servant of all, subject to all."

4. The changes which occur in the character of Cordelia in King Lear and the effect of these changes in the play.

5. The appropriateness of the afflictions suffered by Lear and Gloucester to their respective characters.

III
(One hour)

One of the most familiar questions in Western thought has been that of whether there is such a thing as natural law, that is, a set of rules for human conduct which ought to serve as the basis for the customs and legislation of society and which man can know through the use of his reason.

Discuss the position which you think would be taken on this question by Hobbes and two of the following writers: More, Machiavelli, Montaigne, Locke. Base your discussion on specific references to the works of these men.

Saturday, May 28, 1960 Time: 9.00 A.M. - 12.00 Noon

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Final Examination in
21.04 MODERN WESTERN IDEAS AND VALUES

DIRECTIONS: Neat writing, careful organization of material, and correct grammar, spelling, and punctuation are important throughout the examination. Plan to leave time for rereading and correcting your work.

I
(One hour)

"The hybrid European ... necessarily requires a costume. He needs history because it is the storage closet in which the costumes are kept ... We are the first era that is truly learned so far as 'costumes' are concerned -- I mean moralities, articles of faith, esthetic tastes, and religions ... The past of every form and mode of life, of cultures that formerly clashed ... is flowing in our 'modern souls.'" (Nietzsche)

Consider the extent to which this quotation illuminates the choice of subject and thematic material and means of expression (imagery) characteristic of Nietzsche, and either a contemporary novelist or a contemporary poet whom you have read this term.

II
(One hour)

It has been maintained that "the major influence affecting the development of modern thought -- whether by attraction or by repulsion -- has been that of the scientific world view and its associated methodology."

Comment upon this proposition with respect to three of the following authors:

Marx	Ayer
Darwin	Ryle
James	Weldon
Freud	An existentialist philosopher

III
(One hour)

Choose five.

1. Explain the Marxist conception of the"withering away of the state."
2. What are Darwin's objections to the concept of species as fixed types?
3. At a hectic meeting the chairman called for a vote by saying, "All those in favor of this emotion .." How might Freud explain such behavior?
4. Why does Rubashov capitulate?
5. What is Hitler's conception of the state?
6. Explain Ayer's assertion that ethical statements are "meaningless."
7. What does Ryle mean by a "category mistake"?
8. What are the differences between Peirce and James?
9. What are Maritain's objections to non-Thomistic existentialism?
10. What does Sartre mean when he says man "chooses himself"?

OR

Why does Sartre call his play "No Exit"?

11. Why does Gustave Aschenbach go to Venice?
12. What is the significance of Robert Cohn in The Sun Also Rises?
13. What is the basis of Stephen Daedalus' objection to Ireland?
14. Explain Gide's choice of the title, The Immoralists.

COLUMBIA UNIVERSITY

CONTEMPORARY CIVILIZATION A
Final Examination
May, 1960

PART ONE (1 hour): Discuss briefly (in two or three sentences) ten of the following fifteen questions.

1. What distinction is central to Mill's position on the enforcement of morals?
2. What is Bentham's attitude towards traditional institutions?
3. What contributions does Marx note as having been made by the bourgeoisie during its progressive period?

4. What demand made by the Revolution of 1848 struck Tocqueville as radically different from the demands of the Revolution of 1789?

5. What is the "harmony of interests" doctrine of the classical economists?

6. What for Mazzini is the relationship between nationalism and internationalism?

7. What does Spencer mean by"the law of progress"?

8. State two types of evidence that Darwin offers to support his theory of evolution.

9. What is the role that the concept of "survivals" plays in Tylor's evolutionary theory?

10. Why does Bergson reject teleology or "radical finalism"?

11. What is Carnegie's attitude towards the development of labor unions?

12. What does Lenin mean by "trade-unionism"?

13. What is Sorel's attitude towards compromise between classes?

14. State two of Nietzsche's criticisms of Christianity.

15. Why, according to Stalin, is there no need for a multi-party system in the U.S.S.R.?

PART TWO (2 hours): Select three of the following six questions. Answer I or II, III or IV, and V or VI.

I. What are the principal points about evolution made by Darwin in the selection that you read? What consequences for philosophy and for the treatment of social issues were drawn from his theory by later thinkers? Evaluate the validity of these "extensions" of Darwinian theory.

or

II. Discuss the efforts made by Buckle, Tylor, Spencer, and Pearson to develop a science of society. What problems did these writers themselves see as inherent in these efforts, and what difficulties that they do not discuss seem important to you?

III. A number of selections discuss economic crises in Western society throughout the latter part of the Nineteenth Century and the first third of the Twentieth Century.

1) What is the economic problem as seen by each of the following: Carnegie, Rathenau, Beveridge, Hitler, and Mussolini?
2) Discuss the means of solution of the problem offered by each of these writers.

or

IV. What common features emerge from the specific criticisms of "capitalist democracy" set forth by Mussolini, Hitler, and Stalin? What are the principal characteristics that are distinctive of the ideological programs offered by each of these writers?

V. State the essentials of Marx's view on:

1) the reasons for the breakdown of capitalism,
2) the nature of the revolution, and

3) the proletarian democracy that will emerge as the new form of the state. What changes do Bernstein, Lenin, and Sorel make in these three aspects of Marx's thought?

or

VI. To what extent do the writings of Bergson, Freud, Sorel, and Nietzsche lend support to Santayana's statement that in the modern period intellect has devoted itself to proving its inferiority to other aspects of man's nature?

CHAPTER 3.

THE CONTRIBUTIONS OF THE HUMANITIES AND THE SOCIAL SCIENCES, THE BIOLOGICAL AND PHYSICAL SCIENCES, AND COMMUNICATION, TO GENERAL EDUCATION.

3.1. THE HUMANITIES.

3.11. The College of the University of Chicago.

The general sequence in the humanities extends through eight quarters, and includes 'Humanities' 111-112-113, 124-125-126, 201-202-203. (126 and 201 are identical). The general-studies requirement for some students is the first five quarters, and for others the first six. The last three quarters are required in some specialist degree programs in the humanities, and may be elective in others. The following information comes from [Chicago, 1962-63, pp. 63-66].

The humanities are concerned with the understanding and appreciation of those products of the human spirit which have moved the minds of men over the ages. Because they touch upon those aspects of human experience which each man must face and understand anew for himself, the works of men such as Plato, Confucius, Michelangelo, Shakespeare, and Beethoven have endured and are vital and meaningful today. And because they are thus central to our thought and culture, the humanities have traditionally constituted the heart of liberal, undergraduate education -- acting as a foundation for those planning a career in business or the professions as well as for those intending to continue their studies at the graduate level. Indeed, graduate schools, whether of business, law, medicine, or the sciences, have emphasized more and more the vital importance of a liberal humanistic education as a concomitant of specialized skill.

The eight-quarter sequence as a whole has three principal objectives. The first of these is to acquaint the student with a considerable body of the best works in the fields of literature, music, and the visual arts. The second is to develop skill in the arts of interpreting these works. The third is to give the

student an understanding of some of the general principles upon which critical judgments and evaluations of the arts are made and to develop some skill in the written application of these principles.

Humanities 111-112-113.

The first year of the humanities program is an introduction to music, the visual arts, and imaginative literature. Although class discussion focuses upon one or another of these arts for periods of one, two, or three weeks at a time, study in each of these areas proceeds concurrently throughout the year. Each week a lecture precedes the work carried on in four discussion sessions.

The student is first asked to consider works of art as separate and unique objects that can be observed as things in themselves. The elements and the principles of organization used in art, in music, and in literature are examined in their relation to expression in order to supply the student with general methods of analysis that can be of use to him in understanding the particular works studied. The scope of discussion is presently increased by adding to it a consideration of various modes of classification that may throw light upon the individual work; for example, the novel as compared with the drama, fresco as compared with oil, or fugue as compared with sonata. Later, yet another dimension is added by considering the effects upon it of time, place, and artist. The terms of discussion are cumulative throughout the course.

Humanities 124-125-126(201).

The first two quarters of the second year of the humanities program are designed to develop competence in the arts of interpretation needed for understanding works of history, rhetoric, and philosophy, as well as works of drama and fiction. Each week a lecture precedes the three discussion sessions.

During the study of historical writings the students read selections from such historians as Herodotus, Thucydides, and Gibbon. Attention is directed to discovering the aims of the particular historian, the way in which his aims determine his selection of materials, and the principles by which he

determines the causes of events and by which he evaluates evidence. The student thus learns to understand the nature of a historical construction and to distinguish the interpretations of one historian from those of another. The approach to the study of each of the other literary types is similar; that is, for each work of drama, fiction, philosophy, and rhetoric, those questions are raised that will best lead to an understanding of the aims and essential traits of each, both in its individuality and in its exemplification of the creative possibilities of one of the humanistic arts.

Humanities 201(126)-202-203.

Humanities 201-202-203 brings to a focus in the problem of judgment those elements in the entire humanities sequence concerned with fine art. It recognizes that there are different conceptions of the functions of the arts and that evaluations of particular works can imply philosophical commitments on these questions. For these fundamental attitudes, it examines the diversity and possible analogies among such authors as Plato, Aristotle, Dewey, Croce, and Collingwood. It recognizes also that the practice of criticism is, finally, addressed to a given work; and so, interspersed among these theoretic readings are literary works themselves -- in fiction, drama, and lyric poetry -- as well as critical essays concentrating upon particular works and demonstrating the practical effect of certain implicit or explicit assumptions.

Discussion sections meet three times each week. In addition, a weekly lecture is given in Humanities 201.

Dr. Russell Thomas is Professor of Humanities in the College. The following comments arise largely from his chapter in The humanities in general education. [Fisher, 1960, ch.10]

The first course 111-112-113, meets five times each week, one hour being devoted to a lecture and four to discussions in class sections of approximately twenty-five students. The content is organized in terms of problems which have their peculiar applications in each of the media. At the beginning of the year the elements of musical, visual, and literary forms are studied intensively. In the first approach to music,

students are introduced to the elements of tonal organizations: metric organizations, phrase, structure, tempo, dynamics, melody, and tonal range, and to the effects of these in various kinds of compositions. This is followed by an introduction to the elements of colour, line, volume, mass, etc., in the organization of painting, sculpture, and architectural works, and to the differences in visual expression achieved through different uses of these elements. The analogous problem in literature concerns the power of language to achieve its poetic effects through the uses of sound, imagery, figures of speech, and statement. Following this elementary beginning, the cycle is repeated, this time with the study directed to more complex problems of organization, as for example, part-whole relationships. In the study of music three compositions having superficially the same formal structure (A B A) may be studied with the purpose of understanding through careful listening the different ways in which each realizes this formal organization. In the study of literary works, problems of plot structure and the relation of plot, character, and diction to the whole structure are the centre of interest. In the visual arts, where the organization of parts is not dependent on a temporal sequence of statements, there are problems in the relation of points of view in the organization of three-dimensional works -- for example, the relation of the interior to the exterior of a building or the integrity of a sculptural work perceived through viewing it on all sides. The works selected for study in each medium are more complex than those chosen in the first problem. After the middle of the year, each of the arts is approached in a quite different way. Thus far works have been studied individually and comparatively but without regard to their historial context except insofar as it might be necessary to explain some details of content. To complete the course, the arts are now considered within the context of historical problems. According to the 'Instructor's manual',

> the aim of this study is not to explore the context per se -- to be able to characterize or label 19th century music or 'Romantic' painting -- but to note the existence of such contexts and how they illuminate further the individual work

of art. A different aspect of the problem of historical context is treated in each of the arts.

This unit of the year's work has been particularly useful in bringing modern, even contemporary, problems of style and subject matter into intelligent relationship with the past. Yet even within this consideration of the temporal continuity of the arts, the work of the course does not allow the students to lose sight of the individuality of the artist or his works, i.e., 'how artists of a given time or movement may seem to resemble each other closely in respect to past art or a general historical development, yet differ radically from each other when individually considered.'

The course has always made use of the rich resources of the city as a part of the subject matter. The Art Institute of Chicago has cooperated in making original works available for classroom study, and study of particular works in the galleries of the Institute under guidance of a staff member is regularly assigned. The staff maintains a studio and small gallery, under the direction of a staff member who is a painter and sculptor. Exhibits in the gallery are on display at all times, and studio assignments give the students familiarity with the materials of the visual artist and of his problems of technique and organization. The studio is open at all times to students in the College who wish help in drawing, painting, printmaking and sculpture. Listening rooms are available for individual and group study of musical works. Some of the weekly lecture hours are concerts or recitals of music and poetry by guest lecturers and staff members. In 1960,[pc] 650 were following the course. After a weekly lecture the content of the course was discussed in four discussion sessions in groups of about 24 students. Teachers were all given three handbooks, which were not text-books, nor duplications of the lecture, entitled: 'Learning to look', 'Learning to listen', and 'What happens in literature'.

In the second course, 124-125-126(206), the continuation of the study of dramatic and fictional works, begun in the first course, is deliberate, but analysis is more intensive. The course is designed to

answer three questions of paramount importance. What is the nature of a history, a novel, a philosophic demonstration, and a rhetorical argument? What kinds of questions does one raise which will guide one in understanding the structure and purposes of each of these forms? What are the characteristics -- in subject matter, point of view, style, modes of argument, etc., which give any work of any kind a distinction that makes it unique among its kind? By the end of the year's work, it is hoped that students will have perceived that great works of art may be interpreted in more than one way and that the most complete appreciation requires the exercise of all of the arts of interpretation.

No further comment is made about 201(126)-202-203. At the time Thomas wrote the chapter referred to above, and at the time of a personal conversation with him in 1960, radical changes were expected in the course. 202 and 203 are in any event not required general-studies courses.

3.12. University College of Michigan State University.

The humanities course is taken in the sophomore year, or even later. It is recognized that only mature students can cope with and benefit from the course to the fullest. Classes in 1959 met four times a week in a sequence of three ten-week quarters: there were 90 sections of average size 40.

The work of the first term is called 'Roots of the western tradition', and it deals with selected topics of Greek religion, philosophy, literature and art; the political, legal and engineering genius of Rome; and the Jewish background of Christianity and its spread in the Roman world. Throughout this term and others selections from original writings are studied.

The work of the second term is called 'Mediaeval culture and the dawn of modern times'. Under the title 'The mediaeval unity', the feudal setting of the Middle Ages is considered, and also the Christian Church and its expressions in art and architecture, literature, education and philosophy. The term concludes with a study of the Renaissance and the Reformation.

The work of the third term is called 'The modern

world'. Topics considered (1650-1850) are the intellectual foundations of the modern world, science and rationalism, the main currents of the liberal and democratic ideologies and their differing historical realizations in France and the United States, and the expression of the times in literature and art. Then follows emphasis on the main ideas and institutions of the western world in the last century, such as the industrialization of society, nationalism and imperialism, collectivism, and the novel and drama, and the painting and architecture of the twentieth century.

A first reaction is to say 'impossible' -- even for a second-year or third-year student. It must however be remembered that a student who wishes to make a major study of these fields can do so in the College of Arts and Letters. The general education procedure is to study 'selected highlights' only. A more striking comparison is perhaps between a senior student taking such a course, and a South African scholarship student, outstanding in science and mathematics, who had studied no history in his last two years at school, and who entered university in 1963 ignorant even of the dates of the first world war, and with no planned opportunity and little time in his freshman year for anything but mathematics and science.

Staff members are aware of the dangers of superficiality. Indeed when the two alternative courses of 1944 -- 'History of civilization' and 'Literature and fine arts' -- were merged in 1952 into one, to combine the best features of both, considerable protest was made, and rumblings could still be heard even in 1960[pc]. These stresses and strains are described in [Carlin, 1960, ch. 5]. The same task in the natural and social sciences was even more difficult.

The work of the course is supplemented by the Humanities Reading Center, by concerts, plays, and films, and 'the measurable successes in all these activities give a strong indication of the impact of the Humanities course on its students and indeed on the intellectual life of the university community'. [Fisher, 1960, p. 117, and ch. 9] In 1954 a questionnaire was issued to all students completing the third quarter of the course. 1500 students sent

in replies. They were asked to answer freely, without signing their names. "The replies indicated that the new course was generally successful. By a ratio of more than ten to one, students reported favorably upon the adequacy of the syllabus, the amount of subject-material presented in class, and the length of reading assignments. The same proportion expressed approval of the visual aid showings. Most striking was the fact that this 'captive' audience, with majors in every field offered by the university, indicated a high degree of interest in the Humanities program. Only one student in ten stated that his interest was less than that in his other courses, while three out of ten found the course of equal interest, and five placed it above the others. It seemed fair to conclude that the high level of interest sustained, in a required course, reflected a sound program. Some students (about one-third) reported difficulty in reading assigned materials. ..... The department recognized that the greatest single handicap of the students it taught was deficiency in language skills." [Carlin, 1960, p. 118]

3.13. The humanities: some general comments.

At M.S.U., the Curriculum Steering Committee was urged by the department head to give a concise definition of the term 'humanities' which would be a guide to staff and students as to objectives. The department head had sketched the history of the term humanities from Literae Humaniores,[1] first used in the Renaissance. "At that time it signified a secular attitude after the classical manner in art and literature, as contrasted with the theocentric attitude of latter-day scholasticism. But in more recent times the connotation of humanities 'broadened and deepened in response to the appearance of a new antithesis'. The antithesis is the view of man which has arisen from rationalism and materialism -- a view which reduces man to the levels of the animal and denies his freedom of will and creativity. The humanities reject such a narrow conception and embrace those fields of study connected with men as human beings, as 'creative individuals'."

Use of the term 'humanities' in the United States

1. ...to distinguish it from Literae divinae.

to designate integrated courses in the areas of history, literature, and art began in the late nineteen-twenties. The programs were extremely varied but could be placed in either of two principal categories. One represented humanities as aesthetics; though presented in different ways, such courses were marked by concern for 'art as art, for form as form, for taste as taste'. The other category was historical; such courses were developed on the basis of successive cultures. At Michigan State University, of the 1944 courses, the Literature and Fine Arts Department represented the first type, and the History of Civilization Department the second. In 1952, M.S.U. decided to follow the historical - cultural orientation. [Carlin, 1960, pp. 109, 110]

The volume The humanities in general education edited by Dr. James A. Fisher [1960] concludes with a chapter [18] written by himself entitled 'The humanities in general education : 1949-1959'. The first chapter 'Trends in the humanities in general education', by Dr. Robert F. Davidson, is a reprint of the last chapter [p. 289] of The humanities in general education, edited by McGrath in 1949. Reference is now made to these two chapters.

The earliest programs were those of Columbia (1919 and 1924), Reed (1921) and Wisconsin (1927). The major concern of these courses was to provide the student with some broader understanding of his cultural heritage, some better release from slavery to the merely contemporary. From the start it was agreed that courses would have to cut across departmental lines. The more traditional courses in the fields of history, literature, the arts and philosophy did not provide broad and well-integrated interpretations of our cultural heritage.

Three approaches result: firstly, the historical and cultural approach. The danger, as is noted repeatedly in these pages is to attempt too much. Some topics only can be considered, and M.S.U. in the 1940's used these criteria of selection: historical economy -- requiring significant ideas only, not factual information; maturity -- study of a 'golden age' revealing the spirit of an age, not the details of its institutional life; and relevancy -- of the past for the present. One of the most pronounced trends, said

Davidson writing in 1949, was to use increasingly original sources and not text-books. Parallel with the first approach and the use of 'great books' came the second, stressing a philosophical interest in ideas or 'great issues.' Possibly one 'great issue' might provide the substance of a course, as at Princeton University in 'Man and his freedom'. The third type stresses an understanding of the arts, and is broadly aesthetic in character. Two examples of such courses have been met in these pages: Columbia CC-B, and Chicago 111-112-113.

Davidson [Ibid., p. 16] discusses the perennial problem of obtaining specialist teachers able to handle several disciplines. "One institution after another," he says, "has concluded that a better humanities course could be developed when a single instructor took the same group of students through the whole program, rather than when specialists were allowed to handle their own fields." Indeed Greer [Carlin, 1960, p. 105] says that the pre-1952 staff of the Literature and Fine Arts Department were unable to teach the new humanities course because they were specialists not generalists, willing to teach only one subject among the arts, and not disposed to teach a far broader program.

How does Fisher [1960, ch. 18] summarize the position at the end of the 1950's? He refers to Davidson's outline of the three approaches to the humanities. After another ten years of serious work and thought, he says, the colleges continue to find these three emphases satisfactory and defensible.

The most thoroughgoing 'great books' course of all is that of St. John's College. "The whole St. John's program is a Humanities program," said Dr. John S. Kieffer, formerly President. The 'great books' seminars are supported by the study of classical and modern languages, by mathematics tutorials and by laboratory exercises in natural science to form a single, unified whole, -- the same all-required curriculum for every student. The course was started in 1937, and the fundamental structure has not altered since the publication of The humanities in general education in 1949. [McGrath, p. 42] A self-study project by the Instruction Committee in 1955, under a grant from the Ford Foundation's Fund

for the Advancement of Education, led to some refinements, and, in particular, to greater weight being given to the art of writing.

The major changes in courses such as that now known as 'Introduction to the humanities' at M.I.T., and formerly as 'Foundations of western civilization' has been a change from what Professor Howard Bartlett[pc] called the 'Babylon to the New Deal approach' (the survey method), to the block-and-bridge approach (teachers by means of highlights during class instruction driving in the blocks, with the students themselves then, or in later years, building the bridges). In other words such courses are becoming 'great issues' courses. Fisher refers to one very interesting shift. At the University of Florida the first semester course dealing with 'Our cultural heritage,' and the second semester course on 'The humanities in contemporary life' were reversed with most successful results. The students' interest in the contemporary scene was used first, and then, later, their curiosity as to how it all arose.

The third approach might be called the 'great works' approach, -- the study of the art object qua art object rather than as a monument to the past glories of mankind. This is an attempt to ensure that the student develops certain critical attitudes toward the whole field of artistic endeavour so that he may participate emotionally and intellectually in the world of creativity throughout his continuing adult life. Fisher shows how, throughout the vicissitudes of its complex history, the College of the University of Chicago has felt that, for the thousands of students who would not study the humanities beyond its general courses, this approach was all-important.

3.2. THE SOCIAL SCIENCES.

3.21. The College of the University of Chicago.

The general sequence in the social sciences extends through two years. The first year course is social sciences 111-112-113, 'American democracy: its development and present policy problems', I, II, III; or social sciences 115, 116, a two-quarter variant (for students who through placement tests have shown evidence

of superior performance), with the same title but lettered A, B. Similarly, in the second year students study either social sciences 121-122-123 or 125, 126, named 'Culture and freedom' (I, II, III or A,B). Students must also take two quarters of the three-quarter sequence 131-132-133 called 'History of western civilization', I, II, III. The third quarter may be taken as an elective, as also year-long courses providing introductions to Chinese or Japanese or Islamic or Indian or Russian/Soviet civilization, and other general courses in the social sciences.

Social sciences 111-112-113 concerns itself with original speeches, pamphlets, and essays on topics including political theory, political science, economic theory and policy, and historical trends. Attention is focused for somewhat more than the first half of the course on the policy debates surrounding the decisions to break away from Great Britain, to set up a new nation, and to meet the problems of slavery and union. In the latter part of the course, discussion turns to recurrent problems of America as an industrial society and centres upon the role of government in the economy, and the tension between private and public interests. Attention throughout the course is accorded to both empirical data and philosophic principles. Social sciences 121-122-123 carries forward the study of American society by starting with the wider stage of cultural development in general -- with what it means to be a person in a culture, growing up in a culture. Readings include materials in psychology, anthropology, and sociology. The course then turns to the import of such conceptual tools for the circumstances of our own industrial culture and the situation of individuals in it. Toward the end of the second quarter, attention again reverts to the public policy approach, within the framework of such cultural contrasts as that between the United States and the Soviet Union. American-Soviet relations are viewed both in themselves and also in the context of the wider international order; the course terminates in an inquiry into the conditions of establishing a just and enduring peace among nations. This course was given for the first time in 1960-61. History 131-132-133 seeks both continuity and depth at

selected points in the history of Western cultural heritage. For these purposes, the course gives attention both to delineating the main trends of Western history and to interpreting the intellectual products of important periods in this history. The course thus aims to convey the texture of particular periods of Western thought within the wide sweep of historical development. [Chicago, 1962-63, pp. 133-136]

Dr. Donald Meiklejohn is Head of the Social Science Section and Professor of Philosophy. In 1960, he said[pc], 400 students were following the first year course in 25 sections of 16 with 10 teachers (who naturally had other responsibilities also). Dr. Meiklejohn was very concerned with the problem of compressing the pre-1958 work in general education, to which was devoted nearly all of four years, into two years of required general courses, together with others either as electives or as requirements of professional schools. In humanities and natural sciences, the pre-1958 third-year course was dropped except as an elective. The social science staff however decided to retain the major objectives of all three of the older courses, and to construct two new courses from elements of the older three.

Further detail follows about the freshman course from his chapter in Social sciences in general education. [Mayhew, 1960a, ch. 16] This course centres around problems of American democracy because of the conviction that attention to American society, as a developing and self-consciously directed public enterprise, is highly significant for American students at college level. There is thus a strongly historical approach. On the other hand, the course may be considered in quite non-historical ways. For it offers from the start inquiry into the reason for holding certain beliefs about human behaviour -- about why people act in a given way, or whether they should act this way or that. In this sense the course proposes to be an introduction to social science proper in that it lifts the student out of the development of a society -- his own -- and invites his comments and reflection upon it by having him read some of the most thoughtful and persuasive writings of men who were both actors and commentators in American development.

The course 'History of western civilization' is organized by Professor Christian W. Mackauer, chairman of the College history group. The course was given in 1960, he said,[pc] in the second year. Previously it had been given in the third year, and was then used with a philosophy course to form a capstone. It now deals with the following topics: I Interpretation of history; II The Greek polis; III Rome: late republic and empire; IV Christianity in the ancient world; V Mediaeval Europe; VI Renaissance and Reformation; VII England and France; late seventeenth and early eighteenth centuries; VIII The French revolution; IX The nineteenth century. Readings on each of those topics are selected by the staff, and printed by the University of Chicago press. There is also a handbook for the course. Students must read given sections in advance of the weekly lecture and discussions. The first two quarters are required general studies, but the full three-quarters sequence is a pre-requisite to concentration in history. It is thus both a general education course and an introductory course. Concentrators also have to take a course in a non-western civilization.

3.22. University College of Michigan State University.

Dr. Douglas Dunham, chairman of the Department of Social Science, stressed[pc] that with 6,000 or 7,000 students taking the same course in 80 to 90 sections and with nearly 40 teachers, the course in **social science** had to be, and certainly was, worked out with great thoroughness. Such a large group of students was inevitably heterogeneous, but examinations sorted out the weakest and the brightest, and students could be suitably grouped into sections.

The following details are taken from his contributions to [Mayhew, 1960a, ch. 7], and to [Carlin, 1960, ch. 4]. The raison d'être for a general education course in social science, such as is required for all students at Michigan State University is as follows: "A democratic society can be maintained only insofar as men in considerable numbers can base their judgments concerning public policy, social issues or community decisions on objective social science evidence." This individual-in-society orientation leads to three

questions, to each of which one quarter is devoted.

Thus the first term of the course examines the question: How does society orient new members of the group to the prevailing patterns of behaviour? This introduces the student to certain essential basic concepts such as personality, culture, society, status and role. Treatment of this question also presents an analysis of the functioning of the family, the school, and the church in the socialization-personality development process.

The second term examines the persistent problem: How does society satisfy human wants? The major focus is on economic wants. Here the course examines economic behaviour in broad outline, motivations for economic behaviour, the ideological frame of reference of American society. National income analysis with particular emphasis on the relationship of national income levels to the satisfaction of human wants is also presented. Inter-group relationships between significant economic groups involves a discussion of labour-management activities. Finally, in order to contrast the American economy with significant aspects of other kinds of economic systems, a comparative analysis is made in terms of ideology, and methods of production and distribution in a socialist and a communist system.

The third social problem examined and comprising the work of the final term is: How does society regulate and control behaviour? The analysis of this term presents the nature of social control with a particular tie back to the material of the first term in the socialization process of the family, school, and church. Primary focus of the treatment however is on government as an agent of social control. It is not the purpose of the work to present an introduction to political science in capsule form, but rather to select certain major aspects of governmental institutions for examination in a social control context. Comparisons on selected points of ideology, methods of popular participation, and constitutional safeguards are made with the British, the Soviet, and a fascist type of state. The final unit broadens the perspective considerably to examine social control in the world

community. Particular emphasis on the nature of international relations and the foreign policies of the United States and the Soviet Union comprises the bulk of this unit. [Mayhew, 1960a, pp. 95, 96]

The content of the course must be studied in the light of the fact that it had to perform three primary functions: first, to present a common core of knowledge concerning human behaviour to all students regardless of their future major program: second, to provide a foundation upon which the more narrowly defined social science disciplines of the upper school might profitably build: and finally, to provide a working knowledge of human behaviour and contemporary society for those students who complete only two years of college. [Carlin, 1960, p. 77] "The original decision to construct an integrated course rather than present a series of social science disciplines, in tandem, has been a controlling influence. This has not been easily achieved and in all honesty it still leaves much to be desired ..... Thus, in the perspective of more than a decade, many of the problems confronting the original course planners continue to be items, for constant attention. This is not to say that these problems are insoluble but rather to point out that they are continuing on-going problems in any general education social science course. It underscores the dynamic nature of a general education course which cannot afford to become fixed or static. Many successes have been achieved; many are yet to come."

3.23. The social sciences: some general comments.

Social science in general education is the title of two books in two series both edited by McGrath. He writes the last chapter of the 1948 volume. Lewis B. Mayhew writes the first chapter of the 1960 volume.

McGrath, writing in 1948, found generalists in the social science field to be more enterprising than others, no doubt because of the need of youth to know something about the complicated social, economic, and political problems they will face as adults in the modern world. But a direct attack on contemporary problems is not enough: students, many of whose grandparents were born in Europe, need to learn of the

sources of American culture. It is not enough however to face contemporary problems and to study their origins. It is necessary to develop, while so doing, standards of objectivity, and the student must learn the techniques of investigation of the social sciences. Even in 1948, McGrath was able to point to a growing awareness of the significance for American students of non-western cultures.

It is interesting to note that as early as 1948, McGrath was able to say that the survey course, popular during the thirties, 'is rapidly becoming an extinct species'.

Mayhew, writing in 1960, says that interdisciplinary courses in social science are well-established, but nevertheless the most typical general education method is to provide introductory courses in history, sociology, political science, economics, psychology, anthropology or social psychology. This practice is based on the premise that students 'do not really need to encounter all of the social sciences'. One studied thoroughly should be adequate to demonstrate the methods by which knowledge is acquired in this field. Sometimes six-week surveys of general subjects are given. Mayhew knows well of the opprobium surrounding the word 'survey', but says it is used unashamedly in faculty conversation.

He gives examples of courses based on (i) history; (ii) social problems (racial inequities, crime, unemployment); (iii) broad social policy rather than problems; (iv) an attempt to be more 'scientific' about man and his institutions; (v) personal adjustment to avoid the abstract and bring the course home to individual students (less commonly found in 1960 than in 1948). These methods lend themselves to various combinations; for example, an historical course and a 'problem' course is a frequently met arrangement.

The problem of 'inter-disciplinary' or 'single disciplinary' subjects goes beyond the question of content to that of training, recruiting and retaining general education teachers. The tendency in 1960, said Mayhew, was to greater rigour in courses and towards the traditional introductory courses.

In America, a progressive approach to such problems is common, and if experiments lead to mistakes, changes

can be made more easily than in conservative countries. It is particularly important in the social sciences to relate content to student background. This varies very much from decade to decade. The needs of students brought up during the depression days and 'isolation' days of the 1930's, is different from that of the 'war veterans' after 1945, and different again from those of the students of today wrestling with the problems of 'cold war'.

Generalists in the social science field may be more enterprising than others, as McGrath said in 1948, but the writing of Mayhew and others on this subject is very often little more than a catalogue of different approaches and of unresolved problems. Should the work be 'student-centred', and will it then be rigorous enough? Should it be 'subject-centred', and can an inter-disciplinary course achieve this? If not, which of the many social science disciplines shall be chosen, and shall the choice be free or 'guided'? In the humanities, there is at least a large measure of agreement on what are the classical and modern masterpieces. In the natural sciences, there is at least a large field in which precision of statement is possible. Perhaps it is inevitable in this field, where the 'subjects' are 'young', that experiment is necessary -- and enterprise is essential.

The decision to make 'Contemporary civilization - B' at Columbia voluntary, and replaceable by courses in single social science subjects certainly removed all complacency from the minds of protagonists of general education enthusiasts in this field.

3.3. THE NATURAL SCIENCES.

3.31. The College of the University of Chicago.

Biological sciences.

Professor Benson E. Ginsburg is Head of the Biology Section in the College. He describes [Haun, 1960, ch. 4] the programs in science before and after the reorganization of the 40's, the detail of which is too complex for inclusion here, and of little significance for these pages, except historically. He was chairman in 1950 of the Natural Science Section (physical and

biological). At that time a three-year sequence was developed consisting of a year of physical sciences, a year of biological sciences, and a year in which two quarters were devoted (at the student's option) either to atomic-molecular theory as an integrating theory in the physical sciences, or to gene theory as an integrating theory in the biological sciences. The third quarter was common to both groups and consisted of relating what is currently known of the structure of genes to modern theories of matter, and exploring the relations between the physical and biological sciences at this overlapping frontier. The 1958 reorganization of the college divided the natural sciences administratively into a physical sciences section and a biology section. He spoke[pc] more feelingly than he writes about the problems of compressing 4 to 6 quarters into 2 or 3. The problem, he said, was more difficult for biology, with little uniformity of high school preparation, than for chemistry, physics, and mathematics. Professor Norman H. Nachtrieb, Head of the Physical Sciences Section[pc], nevertheless had similar time problems. He pointed out that in physics and chemistry it was difficult to 'mix' non-majors (who needed little mathematical background) with majors (who needed much), and that majors and non-majors could be more easily combined in the biological sciences.

This account has been given fully here, because it illustrates the time problem. Indeed most institutions cannot afford the time for <u>two</u> separate general education courses in both the physical and also the biological sciences. Add to this the fact that laboratory work by students is needed, even on a reduced scale, since demonstration of experiments by the instructor is always a second best. The improved methods of teaching science and mathematics in the high schools (PSSC, CHEM, CBA, BSCS, SMSG) now assume very great significance. The Physical Science Study Committee approach of Zacharias at M.I.T. is used by over 100,000 physics students today. Over 50,000 students are engaged in the new biology, -- the Biological Science Curriculum Study directed by Grobman at the University of Colorado. The CHEM approach-- Chemical Education Materials Study headed by Campbell at Harvey Mudd College, is supplemented by CBA -- the Chemical Bond Approach -- codirected by

Livermore of Reed College. In addition there is the School Mathematics Study Group. In two years the numbers quoted above will probably be doubled. These improved methods "have a real bearing on general education courses for students who have been introduced to science through such approaches. The objectives may read the same as in the older courses but the 'revolution' is in what students know when they have completed them. Success in such courses is no longer dependent on rote accumulation of information." The greatest significance lies probably in their contribution to the 'time' problem. Schools may be able to undertake some college work, and free the undergraduate curriculum for more general education. See also [Haun, 1960, p. 288] and [Rice, 1962, p. 88]

The normal sequence of one-quarter courses in biology is as follows:

Biology 111, the introductory course, seeks to impart a common body of knowledge to all students by means of textbook assignments, three lectures per week, and a three hour weekly laboratory. It emphasizes comparative aspects of morphology, physiology, biochemistry and ecology of plants and animals. Stress is placed on the problems faced by living organisms and the adaptations that have been developed to solve their problems. A knowledge of chemistry equivalent to that gained in the physical sciences introductory sequence is prerequisite to the course. Its pace is rapid, and it develops a technical terminology as well as acquaintance with a broad sampling of techniques and phenomena in the laboratory.

Biology 112, assumes the technical background imparted by 111. It deals with the development of current theories of heredity and evolution, primarily through the use of original readings including both classical and modern papers. The course thereby provides an introduction to the analysis of scientific literature in a subject matter area where the literature lends itself particularly well to such treatment at this level. A laboratory project is also required and use is made of the Museum of Natural History. It meets for six hours per week (one lecture and five hours of laboratory-discussion, divided into two 2-hour and one hourly period).

Biology 111 and 112 are obligatory for all students (unless placement and accreditation tests indicate otherwise) and form the core of a three-quarter introductory sequence. The third quarter requirement may be met in a variety of ways. It may be elected from among seven one-quarter courses, one of which, biology 150, is required for biology concentrators, and all of which (including biology 150) may be elected in any desired number, sequence or combination by any student who has had biology 111 and 112 or equivalent background. The seven courses are: 113 -- population

biology, 114 -- problems of embryology and humoral regulation, 115 -- physical-chemical aspects of biology, 116 -- behaviour, 117 -- philosophical aspects of biology, 118 -- field biology, 150 -- vertebrate biology.

These courses are designed to cater to the student's special interest in some areas of biology as against others. Pedagogically (with the exception of biology 150) they emphasize independent library work and a seminar approach in the classroom. They constitute an attempt to give the student training and practice in informing himself regarding areas of biology in which he is especially interested. Obviously, this is impractical in the mass courses (biology 111 and 112) where several hundred students are involved. All of the courses in the entire sequence, beginning with biology 111, are taught by regular staff members who are present in the laboratories as well as the discussions and lectures. Most of the elective courses meet as a three hour weekly seminar. The field biology course has additional time scheduled for field trips, and biology 150, which is the first specialized course for concentrators, meets for six hours of laboratory work and three hours of lectures weekly.

Biology 113-118 are also designed to provide elective opportunities for non-biology majors who have an interest in certain areas of biology and want to inform themselves beyond the three required quarters in the general program.

Ginsburg concludes his chapter as follows: "It is our hope that the new biology curriculum at the general course level will first, give the student a knowledge of the more fundamental concepts and conclusions of modern biology, including an acquaintance with techniques, phenomena and technical vocabulary (biology 111); second, develop an ability to read scientific literature and to follow the development of a few major concepts in biology in terms of the actual researches from which they arose (biology 112); and third, provide practice, through the use of the library and individually prepared seminar reports, in getting biological information, and in understanding and organizing it in relation to knowledge already acquired (elective general courses). In addition, for those who wish to go further, the intermediate level courses, the

specialized electives, and the opportunities for individual honors work, provide a rich curriculum for anyone interested in deeper, more extensive knowledge, whether for preprofessional or other reasons. The total program has been planned with an eye to achieving adequate literacy and background in mathematics and the physical sciences as well, while, at the same time, leaving at least half of the four year curriculum available for courses outside the natural sciences."

Physical sciences.

Professor Robert M. Palter contributed the chapter on the physical sciences to [Haun, 1960, ch. 5]. Since 1958, three different introductory courses have been provided: physical science majors take conventional physics and chemistry courses: biology majors and 'pre-medicals' take a special physics course; and non-science majors take a general education course in the physical sciences. However, it should be emphasized that science majors are also expected to develop the broad and critical outlook on science characteristic of the general education science courses, at diverse points in their academic careers and by diverse educational means. Thus, for example, all students regardless of major take a more or less identical introductory biology course of the general education type. Also, science majors are urged to study the history and philosophy of science in a series of specially constructed courses. Eventually, by means of comprehensive examinations over the main areas of knowledge, it may be possible to set up minimum standards of achievement for all students in each of the areas.

'Introduction to the physical sciences', 105-106-107-108, is the course taken only by non-science majors, and is normally a 'terminal' course, i.e. one for students who will study no more physics or chemistry. Students entering the course will be expected to have studied algebra and geometry in high school, but not necessarily science. Original scientific writings are used instead of conventional text-books, but they are not chosen for their importance in the 'history of ideas', but in terms of the systematic structure of the subject-matter. The readings are collected in three volumes entitled, respectively, The motions and interactions of

bodies, The nature of matter, and The structure and motions of molecules.

How is the constant general education problem of coverage versus depth, of a superficial survey course versus an over-specialized professional course, resolved? Palter gives a 'bald listing of topics': astronomy of the solar system, Newtonian mechanics and gravitation, conservation of energy, structure of atoms and molecules, and kinetic molecular theory. Some new topics, it will be noted, are usually included in more advanced courses: some classical topics must inevitably be treated lightly or not at all. The two major sciences dealt with in the course, mechanics and chemistry, are seen to be related through the kinetic molecular theory and the principle of the conservation of energy.

The annual enrolment in 105-106-107-108 is 200 to 250 students. (1959-1960 figures). Sections average 20 to 25 students. Each student normally takes three other courses. Classes meet three times a week in two eighty-minute discussion periods and one two-hour laboratory period. Occasional lectures (perhaps one every two weeks) were once given, but are now all but abandoned. Palter feels strongly that in an elementary physics course which is also 'terminal', the instructor must be continuously confronted with live students, so that their understanding can be challenged and their misconceptions rectified.

Mathematics.

Mathematics 101-102-103 is the normal general-studies requirement. The basic aim of the three-course sequence is to convey to the student something of the variety and richness of mathematical ideas and methods. In its first stage the course establishes a fresh context in which school algebra is reviewed and extended. The second stage centres on analytic geometry and functions, including circular functions. In its final stage the course presents in a non-technical manner some striking examples of a system of mathematical ideas and methods, e.g. the elements of calculus. The course presupposes a knowledge of elementary algebra and plane geometry such as is ordinarily acquired in high school. It is designed to meet both the needs of the student for whom this will be the last mathematics course and the needs

of the student who will continue in mathematics. The course meets three times a week. [Chicago, 1962-63, pp. 108, 109]

Mathematics 111-112 is an accelerated two-course version of 101-102-103. Certain students are excused from this requirement on the basis of performance on the mathematics placement test. They may register for regular mathematics courses.

3.32. University College of Michigan State University.

The last section dealt with the two general education requirements in natural science at the College of the University of Chicago. The Basic (now University) College started in 1944 with two courses, of which, students could choose one. The two departments of biological science and physical science were combined in 1952. Then followed a problem more acute than that which Chicago had to face. Much opposition at first was encountered. No one was satisfied with the new course in 1952, and many revisions have been required in the decade that has followed. Such an upheaval however has one great advantage. It compels some searching self-study, and forces many questions on to all the teachers concerned. Why teach general education courses? What is 'natural science'? What part does natural science play in general education? What should be the major content of the natural science course? In what ways is it expected that the thousands of students taking the new course would change? What concept should be included, if only one could be included? ('Evolution', said the biologists: 'matter-energy', said the physical scientists). [Carlin, 1960, ch.3]

The present content of the course can best be described in terms of the chapter headings of the three volumes of Natural science, at present in use.

Volume one:

Area I: Methods of science.
Ch. 1: Observation, symbolization and the method of empiricism. Ch. 2: Perception and the methods of science.

Area II: The cell.
Ch. 3: Cells, their structure and function. Ch. 4: Organization of knowledge of the cell. Ch. 5: The historical origin of the modern concept of the cell.

Area III: Reproduction.
Ch. 6: The function of experiment in the clarification of ideas concerning spontaneous generation. Ch. 7: Sexual reproduction. Ch. 8: Reproduction in animals and plants. Ch. 9: Human reproduction and sex hormones. Ch. 10: Observations on cellular reproduction. Ch. 11: Mitosis -- cellular reproduction.

Area IV: Heredity.
Ch. 12: The gene concept and meiosis. Ch. 13: Genes, chromosomes and the nature of a scientific theory. Ch. 14: The function of the hypothesized gene in explaining single-factor crosses. Ch. 15: The development of the gene concept in relation to single-factor crosses. Ch. 16: The function of the hypothesized gene in explaining two-factor crosses. Ch. 17: The gene theory and dihybrid crosses. Ch. 18: Blood groups and their inheritance. Ch. 19: Heredity in man. Ch. 20: Evidence for linkage and crossing-over. Ch. 21: Linkage, crossing-over, and modification of the gene theory. Ch. 22: Sex determination and the predictive value of theory. Ch. 23: The relation of genes to sex and sex linkage.

Volume two:

Area I: Methods of science.
Ch. 1: Facts, laws, theories, and explanations.

Area II: The solar system and the earth.
Ch. 2: The solar system. Ch. 3: The earth. Ch. 4: A classification of minerals. Ch. 5: Some mineral groups. Ch. 6: A classification of common rocks. Ch. 7: The rocks of the earth. Ch. 8: Changes in land features. Ch. 10: Elevating processes and land features. Ch. 11: Interpretation of certain land features. Ch. 12: Reconstruction of the past.

Area III: Life on the earth.
Ch. 13: Animal classification. Ch. 14: Animal relationships. Ch. 15: The plants of the earth. Ch. 16: Plant life and evolution. Ch. 17: Populations and the mechanisms of evolution. Ch. 18: The nature of populations. Ch. 19: Variation and selection (I). Ch. 20: Variation and selection (II). Ch. 21: The facts of evolution and the theory that explains them. Ch. 22: Organic evolution. Ch. 23: Evolution, genetics, and the races of man. Ch. 24: The races of man.

Volume three:

Area I: Mathematics.
Ch. 1: The number concept. Ch. 2: Fundamental concepts of arithmetic. Ch. 3: Review of mathematical operations.

Area II: Physical phenomena.
Ch. 4: Quantitative descriptions. Ch. 5: The gas laws. Ch. 6: Illustrations from

the seventeenth century. Touching the spring of the air by James B. Conant. Ch. 7: The kinetic theory of matter.

Area III: Chemical phenomena.
Ch. 8: The theory of the atom. Ch. 9: Illustrations from the eighteenth century. Concerning electricity and combustion by James B. Conant.

Area IV: Electrical phenomena.
Ch. 10: Static electricity and magnets. Ch. 11: Historical notes on static electricity. Ch. 12: Electricity and the nature of matter.

[Carlin, 1960, pp. 65 - 68]

The many revisions of this course have led to one which in its present form is not only a general-studies course, but one required of all M.S.U. science majors. It is, said Dr. Chester A. Lawson[pc], different in its conceptual frame-work from any specialist course in the biological or physical sciences.

3.33. The natural sciences: some general comments.

Frequent reference has already been made in these pages to the difficulties experienced in providing general education courses in the sciences. Are the problems raised by science faculties taken too much at their face value?

In Teacher in America, Jacques Barzun [1945, p. 82] is by no means careful of the tender susceptibilities of the scientist, and far from patient in the face of their demands. In his chapter entitled 'The ivory lab' he points out that, whereas at the turn of the century Greek and Latin held classical dominance, now science claims pre-eminence. "It is now in power and it acts disdainful, holier-than-thou, and prudish. Someone once asked, 'What is it that our man of science are guarding like a threatened virginity'? 'Oh', was the answer, 'they have a Vestal interest in their subject'. Considered -- somewhat unfairly -- in the mass, science teachers may be said to contribute the greatest proportion of backward-looking, anti-intellectual, mechanic-minded members to the faculty ..... [They] monopolize the student's time, cram him full of 'practical' knowledge, and sell him to the highest bidder the moment he [has] clutched his diploma and returned his ten-dollar deposit for apparatus." Science swells the ranks of the "two great classes

of modern men -- the single-track expert and the scientific ignoramus. Could anything more plainly demonstrate the failure of science to become a subject fit for college teaching? What makes a subject fit for the higher curriculum is surely no novelty: it is that it shall enlighten all the corners of the mind and teach its own uses. The humble three R's begin in strict utility and end up in poetry, science, and the search for the Infinite. They can and should therefore be taught indefinitely. Men have known for three thousand years that other matters of knowledge naturally divide themselves into special and general, that both are needful, but that whereas the special add to one's powers, the general enhance the quality of all of them."

3.4. COMMUNICATION.

3.41. The College of the University of Chicago.

All students are required to take courses in English composition and foreign language. Placement test results determine whether the amount of instruction needed is a two-quarter or a three-quarter sequence.

English 101-102-103. This course seeks to develop the ability to organize an extensive body of material in appropriate expository patterns, to construct sound arguments that are adapted to a given audience and situation, and to employ a distinctive, readable style. Attention is focused on problems of exposition during the first quarter, on the construction of arguments during the second quarter, and on considerations of style during the last quarter.

English 105, 106. This two-quarter course for better prepared students treats many of the same problems in pursuing the same ends as English 101-102-103. After a brief introduction to style, the first quarter is devoted to making clear, in analysis and writing, the principles of exposition; the second quarter is devoted to the principles of argument. Style remains throughout both quarters a subordinate, but important, consideration. Class meetings are spent on the analysis of models of writing and on the detailed analysis of the students' papers. Exercises, focused on specific techniques of writing, and themes, drawn

from the students' own experiences and readings, constitute the writing done in the course.

Basic reading skills 090. This one-quarter, non-credit course is designed to correct basic deficiencies in reading. All students who are shown by the entrance and placement tests to be deficient in reading comprehension are advised to take it. The course may be taken by any student who wishes to improve his comprehension or rate of reading. Instruction is given individually or to small groups scheduled by special arrangement. [Chicago, 1962-63, p. 64]

3.42. The University College of Michigan State University.

Two chapters appear in the 1960 series of which McGrath was general editor: chapter 2, by Professor T. Benson Strandness in [Carlin, 1960] and chapter 15 by Professor Frederic Reeve in [Shoemaker, 1960]. Strandness deals with the period 1944 to 1958, and Reeve with the latest developments. This course is of especial importance, because it has aimed to teach 'the four mutually interdependent skills of reading, writing, speaking and listening'. The tendency in general education is to provide courses in 'communication skills', rather than in 'English' as such. Indeed the title of the book referred to above, edited by Shoemaker and Forsdale, is 'Communication in general education'.

In 1944 the only general education course required in the Basic College was 'written and spoken English'. Five weekly hours were given to the course: two single-hour periods of recitation (class discussion, speeches, speech criticism, and testing), one two-hour period of writing or reading, and one hour of lecture-listening. Groups were designed to be no greater than 20 in number, but they grew to 25 or 30, and it was found difficult to allow each student time not only to listen, to read, and to write under supervision, but more particularly to speak.

The first term's work dealt with observation, definition, development of ideas, and demonstration. The second term covered the nature, creation, and evaluation of reports. The third term's work centred on problem solving (mainly through panel discussions)

and 'persuasion' as types of communication. Each student gave five speeches and wrote five papers per quarter.

Criticisms made by Reeve of the pre-1958 program follow.

> "The course content appeared at times to be diversified to the point of superficiality. Student papers and speeches, developed as types of discourse, frequently lacked substance. The students did not write as much as they should. The final examination, which counted 50% of the student's grade and which tested application of skill, was difficult to study for and disappointed many students and instructors. The listening program was thought to be weak in conception, and was inadequately developed in class, largely owing to student and instructor prejudice. The course did not seem to complement the other three general education courses (Humanities, Social Science, Natural Science) as effectively as it might. The greatest single difficulty was the teaching of speech, which paradoxically was regarded by most students (and many instructors) as the single most effective part of the course. The problem derived from two causes. One was (and is) the size of classes (25 to 30) and the prospect of increasing enrollment and a much more slowly increasing staff, perhaps even a decreasing one. Five rounds of speeches a quarter consumed a disproportionate amount of time. The second, a consequence of the first, was the amount of time students spent listening to one another, time which many felt might be more profitably spent."

The 1958 revision resulted in a more unified and richer content. Student writing was much increased. The examination contained more questions on readings. It was understood that class discussion and oral reports would take the place of speech training: in point of fact, no formal teaching of speech takes place, and there is no speech 'test'.

One subject of constant debate in such courses is the content of the essays required. "How I spent my summer" and "Why I joined the fraternity" are heavily frowned on as subjects. A decision almost universally approved by the staff, was to offer as the basis for the teaching of reading and writing a number of documents of the American heritage -- important speeches, political essays, short stories, plays, novels, and poems. These serve three purposes. First, they give the course a unified, continuous and enriched content, worthy in itself, and providing interesting and substantial material for class discussion and papers.

Second, they offer a complement to the humanities course, a course in the history and culture of western Europe. Third, they offer a variety of models of expression and countless examples of usage, style, etc., appropriate to the teaching of writing.

The present course [M.S.U., 1962-63, p. 58] is called 'American thought and language'. It has three principal aims: to improve the student's reading, to improve his writing and to give him a sense of the forces which have created American civilization. He improves his ability to read by studying a variety of American documents grouped around a number of major themes and developments in the nation's life -- social, political, economic, philosophical, and literary. He improves his ability to write by dealing with ideas in these documents, demonstrating comprehension of them, and expressing reactions to them in a variety of ways.

By paying attention to both the content of American thought and the manner of its expression, the course endeavours to make the student aware of the role which language plays in a free society. It helps him become critical in evaluating what others write and say, able to organize his thoughts and express them with cogency and grace, capable of forming his opinions on the basis of accurate investigation, cognizant of the resources of the American language.

Reeve stresses that the course is not a survey of American history or literature, nor is it a course in American political or social institutions. It is a course in reading and writing using as its source material a number of literary, historical, social, and political documents.

3.43. Communication: general comments.

This subject is so important that it will be dealt with afresh in chapter 5.

CHAPTER 4.

GENERAL EDUCATION IN GREAT BRITAIN AND CANADA AND SOME OTHER COUNTRIES: SOME COMPARISONS.

4.1. GREAT BRITAIN, THE UNITED STATES, AND CANADA.

It would be difficult to find an educationist of standing in New York to whom it was not self-evident that undergraduates planning specialist studies should include in their curricula some formal general education. It would be difficult to find an educationist of standing in London to whom it was not self-evident that university curricula should exclude formal general education. It is possible to meet the one assumption on one day, and the other on the next, and to fly the Atlantic overnight in between. Such an experience gives one furiously to think. One wishes one could have Dr. G.R. Harrison, Dean of the School of Engineering at the Massachusetts Institute of Technology, and Professor A. Tustin, Head of the Department of Electrical Engineering at the Imperial College of Science and Technology of the University of London, on a television program together, and be allowed to question them closely. However much they might agree as to the ideal aims of education in general, they would differ strongly with respect to the details of the practice of general education.

This is all the more surprising because prominent British thinkers often speak in academic orations with vigour and eloquence on the value of a liberal education. Indeed Burchard in the foreward to his Dilemmas of general education [1953, p. ii] says that 'the British writing on this subject has on the whole seemed to me more penetrating and mature than our own'. And yet, with the striking exceptions of Colleges of Advanced Technology, and the University College of North Staffordshire, British practice lags far behind American. One is tempted to say with Mark Twain: 'Everyone grumbles about the weather, but no one does anything about it'. The Linstead report [1961, p. 75] admits the need for breadth as well as for depth in British university curricula, and comes to the conclusion that any

practical steps in this direction 'must largely remain castles in the air at least until the end of the decade 1965 - 1975'.

It should serve to sharpen the thinking of protagonists of general education to consider how it is that the same educational ideals can work out so differently in terms of actual curricula.

Hutchins in his Storrs lecture on 'General education' in 1936 said: "Education implies teaching. Teaching implies knowledge. Knowledge is truth. The truth is everywhere the same. Hence education should be everywhere the same. I do not overlook the possibilities of differences in organization, in administration, in local habits and customs. These are details. I suggest that the heart of any course of study designed for the whole people will be, if education is rightly understood, the same at any time, in any place, under any political, social, or economic conditions." [Hutchins, 1936, p.66] Is Hutchins right, or are the Americans and British so very different with respect to the educational background of their school children, and the curriculum needs of their undergraduates? And why do the Canadians follow British practice, certainly with regard to their honours courses, more than American? Why is there little academic traffic in this regard in the north-south direction? One can understand French-speaking universities in Canada being influenced by Europe, (and this influence includes general education in the classical colleges of Quebec), but why is the east-west influence so strong with respect to the English-speaking universities?

There is very little writing on this subject, and enquiries in the United States, Canada, and England are frequently met with evasive replies. These pages may indeed therefore pose more questions on this point than they provide answers. Only very extensive studies could pin-point the questions that need to be asked, and perhaps only a face-to-face conference could provide firm conclusions. Suffice it to say that the views of British thinkers have been deliberately quoted in chapter 1 in order to high-light this matter.

4.2. SOME COMPARISONS OF SCHOOL LEVELS.

For the purposes of these pages, the four years of undergraduate study in a college of an American university are equated approximately to the sixth form years (usually two), together with the first two years of an English Bachelor's degree (normally three years in length).

The Joint Matriculation Board in South Africa estimates its examinations to be intermediate in standard between the ordinary (O) level of the General Certificate of Education in Britain (taken at the end of the fifth form), and the advanced (A) level of the General Certificate of Education (taken as a rule in two or three subjects in the sixth form at about age 18). There is also an S level for students writing the scholarship examinations of Oxford and Cambridge: such students may spend part or all of a third year in the sixth form.

The American freshmen, sophomore, junior, and senior years are here equated approximately to the last year of secondary school in South Africa (standard X) and the three years of study for a Bachelor's degree. This is an over-simplification, but it is impossible to be very precise. The difference in America between a graduate of a high school acceptable for admission to the best-known universities, and a student who has completed Grade XII in a school controlled by a school board of low standing is considerable. The College Entrance Examination Board, through its Advanced Placement Program[1], makes it possible for some of the work normally done at university or college in the freshman year to be completed at school. It is probably true that the work done in the British sixth form is comparable with that of the freshman and sophomore years of an American college -- but this is so with respect to depth in specialist subjects only, and is by no means the case with respect to breadth in general subjects.

Some Canadian universities will accept United States students after a U.S. Grade XII. [Sheffield, 1960] The University of Toronto however insists on first year U.S. College credits in addition: this is equated by the University to three O level and two A level

1. See chapter 8.

G.C.E. successes, or one O and three A level passes. [Toronto, 1962 - 63, pp. 38, 39] It is evident therefore that precise comparisons are not possible, since this equation differs from that stated in the first paragraph of section 4.2.

Students spend the years up to age 18 in a secondary school preparing in England for the General Certificate of education, in Germany for the Abitur, and in France for the Baccalauréat. 'An English G.C.E., a French Baccalauréat, and a German Abitur are ..... comparable and possess a measure of equivalence'. [Crowther, p. 487] These years are spent in school also in the classical colleges of Quebec Province.[1] On the other hand, for some years the University of Chicago took into Chicago College selected students of about 15 or 16 years of age after the American grade X, that is, two years before high school graduation. So these four years may be spent wholly in school, wholly in a university, or partly in school and partly in a university.

In support of the contention that the British secondary school sixth form starts at about the level of the beginning of the American freshman year the following views are offered.

"At the end of his second year in college the American student is at a point approximately analogous to that at which the French or German students completes the lycée or Gymnasium." [ACE, 1961, p. 6] "The level of attainment reached in American high schools is such that the average entrant to the four-year college course is about two years academically behind his counterpart entering a British university." This British statement by the Anglo-American Council on Productivity, [AACP, 1951, p. 21] has been repeated without comment by J.B. Conant [1956, p. 121, n. 26] "Entry standards to degree courses in America are not less than one year below those to British degree courses. Some United States Professors, knowing the British system, conceded two years difference in entry standards." [Venables, 1951, p. 313]

Dean Burchard of M.I.T. admits that "the graduate of a continental or an English secondary school system is better informed and better disciplined than the

---

1. See page 207.

graduate of a typical American public secondary school. In factual knowledge he may be as much as two years ahead. But he is not an educated young man prepared to face the world, armed only with further ministrations of his speciality. The big ideas of philosophy, literature and history cannot be embraced by the immature mind; in point of fact they are harder than the first ideas of science and mathematics, or the facts of grammar. Every year a certain number of young European students come to Massachusetts Institute of Technology and seek to disengage themselves from the humanities requirements on the ground of their great exposure in lycée or Gymnasium. This gives us the pleasure of conducting an occasional informal oral examination. The results leave no doubt about the inadequacy of this training". [Burchard, 1953, pp. II 18, 19]

4.3. THE CURRICULUM OF THE SIXTH FORM IN ENGLAND AND WALES.

Enough, it is hoped, has been said to justify comparison of the British sixth form and the freshman and sophomore years of North American universities. The views of Dean Burchard quoted above lead to the question: Just how specialized is the sixth form in England and Wales?

The Peterson report [1960, pp. 5, 6] summarizes the school-time given to the specialist and non-specialist subjects as follows. He divides school-time into (1) taught periods, (2) private study periods (i.e. private study within hours normally occupied by teaching), and (3) homework. Sixth forms are divided into science sides (two-thirds of the boys and one-third of the girls), and arts sides (two-thirds of the girls and one-third of the boys). The average sixth former takes 3 major subjects in a working week of 35 three-quarter hour periods. On the science side these will be 3 science subjects (including mathematics), and on the arts side 3 arts subjects (not including mathematics). Only 2.3% of boys and 9.8% of girls combine major arts and science subjects. From 40 to 43 hours of school-time are devoted to academic work in the 3 major

specialist subjects; about 5 to 6 hours are given to minor non-specialist subjects. These are almost never sciences, and are studied, on the average for 4 terms, i.e. 1⅓ academic years. Usually 3 to 3½ minor subjects are studied, including religious knowledge, art and music, and probably 1½ hours per week are given to games by girls and boys, plus 1 hour to cadets by the boys.

The Crowther report refers to time spent on non-specialist subjects as 'minority time'. Normally the minority time is divided between a large number of subjects none of which gets more than two periods a week, or at the very most three; a good many may get only one. A typical program for minority time in the North-East of England looks something like this:

Three periods:	physical education (including games).
Two periods each:	English,
	a foreign language.
One period each:	civics,
	music,
	religious instruction.

[Crowther, 1959, p. 268]

The Linstead report, which deals with the problem of achieving breadth for scientists, engineers and other technologists only, gives similar details. (It was noted above that the minority time of arts specialists is almost never given to sciences in any event: they merely study more arts subjects.)

The Linstead report does stress that in Scotland, mathematics and science take up only about a third of the timetable -- half as much as in the sixth forms in schools south of the border. [Linstead, 1961, p. 17] The University Grants Committee points out that the entrance requirements of the Scottish universities demand generally rather more breadth and less depth than those in force elsewhere. For example, in the University of Aberdeen, a candidate for the ordinary degree of M.A. (3 years post-school) must include mathematics or a science in his curriculum. [Aberdeen, 1961, p. 17] Scottish schools are sometimes criticized for too little specialization. [UGC, 1959, p. 39] The Scottish Education Department states that the degree

of specialist study falls considerably short of that common in English sixth forms, and very seldom extends beyond a single year. The course of study followed by the other pupils up to the final school year is broadly based and designed to give a general education.[Scotland, 1959, p. 3] It must be remembered that the typical Scottish student reaches university one year earlier than his English counterpart, and that an honours degree takes four years and not three. The extra time enables subjects outside the student's speciality to be included in the course. [UGC, 1959, p. 37]

Every one of these reports recognizes that in our age of specialization, there is an essential place for specialization. All agree that present practice in England and Wales can only be described as 'over-specialization'. Sir Eric Ashby has said: 'No secondary education is so over-specialised as [that] in Britain'. [Ashby, 1958b, p. 481]; and Sir Charles Snow has referred to 'our fanatical belief in educational specialisation'. Peterson says: "Such a pattern of specialisation, concentrating nine-tenths of the pupil's time on either the Arts or the Sciences from the age of 16 (for the ablest 15) onwards is unknown outside England and Wales. Its intensity is such that it has in practice meant that the little time given to non-specialist subjects is largely wasted, since it is hard to get pupils to take seriously work which is neither examined nor considered worthy of a share in the homework programme.[1] And it has cast its shadow so far before that not only have four-fifths of the pupils made the effective choice between a scientific and a literary education in the fourth form (age 14 - 15), before they have had any real experience of the studies involved, but in some of the most specialised schools, a preliminary, if not final, choice is made on entry ..... It is difficult to see how a choice made after so short an experience can be other than imposed or arbitrary. Nor is it easy to justify to critics not brought up in the system a curriculum which deprives one third of the nation's ablest pupils of any advanced Mathematics and the other two thirds of

---

1. [Crowther, 1959, p. 268]: "Neither to teachers nor to pupils do they represent a major commitment or concern. Both have, in their own estimation, more important things to do."

any serious contact with foreign languages or with the literature of their own country. To those bred in the tradition however it clearly has great attractions, and any serious critique of the system or proposals for change must take account of the tradition and of its origins." [Peterson, 1960, p. 7]

4.31. Historical origin of the English pattern.
[Ibid., pp. 7 - 11]

"The extent to which tradition governs this question of specialisation and general education is well illustrated by the fact that the report on General Education in School and College [Aelhpy, 1952] accepting that the average age at which the able American youth begins to specialise is 20, concludes that there is nothing inherently wrong about this pattern, while the Crowther Report [1959] having similarly established that the English or Welsh school-boy does so at 15 or 16, similarly endorses the existing system on 'broad educational grounds'. Whatever the sociological differences between the two countries, it does not seem inherently probable that both endorsements can be right. Quite possibly, neither is."

In the middle of the nineteenth century, problems arose from the need to introduce new subjects, above all the natural sciences, into a secondary curriculum previously confined to the classics. "At this stage two theories can be distinguished which were then still common to England and to her neighbours. The first was that the curriculum should be broadened for all, to include some science and modern studies as well as classics, (Huxley's view): the second was that a 'modern' education including science should be provided for some pupils as an alternative to the grand old classical curriculum ....." By the turn of the century Germany (1900) and France (1902) had chosen the first ('integration') theory. England, too, reorganized her secondary education in 1902: she adopted the second ('sides') pattern.

Why? First a word about Germany and France. The integrated system is "essentially the pattern of their sixth form education today. Germany retained different types of schools while France preferred different

courses within the same school, but the basic pattern of General Education adopted was the same in both countries. This is a common course for all, with no division into 'sides', but with a variety of options in the last few years providing courses more strongly biased towards either 'Arts' or 'Sciences'. In all courses, Mathematics and one's own language and literature remain obligatory. Subjects from both 'sides' are examined and have a proportionate claim on homework ..... General education, with the option of a bias one way or the other, has become the pattern for the ablest pupils between 15 and 18 throughout Europe."

Why did England adopt the alternative pattern of 'sides'? "It seems very probable that one reason was the lack of a Ministry of Education or indeed of any authority prepared to give a decision in the controversy, or to impose a pattern however flexible, on the individual schools or universities." Theoretically each school could determine its sixth form curriculum but this freedom was in fact illusory. "To the Grammar School between 1902 and 1939 the possibility that their sixth formers might win scholarships to take them to the Universities was as important as the possibility of winning places at the Universities has now become."

Thring in his Education and School [1864] said: "It can scarcely be denied that spreading the efforts over too wide a surface is not training ..... Let the mind be exercised in one noble subject ..... If this subject also itself embraces a wide field of knowledge, so much the better. The universal consent of many ages has found such a subject in the study of Greek and Latin Literature."

With Huxley's insistence that the classics had no monopoly of 'nobility', emphasis on 'one noble subject' came to be place on the word one. "When science and modern subjects began to be accepted, therefore, they were not allowed to affect the existing classical scholarships: instead separate specialist scholarships were awarded in the new subjects." And so England adopted the 'sides' theory, and not the 'integration' theory, and the difference of opinion persists in the recommendations of the Peterson report ('integration') and the Crowther report ('sides').

4.32. Changes recommended in the Crowther and Linstead reports.

The authors of the Crowther report examined the case for and against specialization, and they endorse the principle of specialization, or study in depth, although they have some criticisms of present practice. The criticism which is most relevant here is that minority time (i.e. time devoted to non-specialist subjects) is often neglected or wasted, although it is of such vital importance[1].

They believe there should be certain essential elements in a sixth form curriculum. Firstly: 25 or 26 periods per week of the conventional total (35 periods of $\frac{3}{4}$ hour each), plus almost all the homework should be devoted to specialist subjects. The balance of 9 or 10 periods per week should be given over to common and to complementary subjects, about one-half to each. [p. 275] Secondly: subjects sixth formers should study together in in common are religious instruction (or rather, the very much wider field of everything that contributes to the formation of moral standards), art (also in the widest sense) and physical education.[p. 274] Thirdly: the complementary element is designed to ensure literacy for the science specialist, and 'numeracy' for the arts specialist. The authors coin the word 'numeracy' to represent the mirror image of literacy. This simple concept that, whatever else a secondary school curriculum is expected to do, it must at least make provision for literacy and numeracy is so important that it is dealt with separately in the next chapter.

Briefly, literacy is the ability to use one's mother tongue concisely, clearly and simply, and to have some aesthetic feeling for good form and good content in literature. Numeracy is the ability to use the language of mathematical equations for those natural sciences which lend themselves to mathematical treatment, or at least the ability to understand the language of

---

1. The Crowther report, [p. 460] says this is between one-quarter and one-third of the school week: Petersen, [pp. 6 and 7] says it accounts for about one-eighth, or 5 to 6 hours in a total school week of 45 to 49 hours. This divergence arises primarily from ignoring the fact that 18 out of 20 hours homework, and almost the whole of private study are given to specialist subjects.

graphs, and perhaps also of statistics, so frequently used in the biological or sociological sciences.

The authors of the Crowther report recommend special work in the arts to make and keep science specialists literate, and a special course in science to make and keep arts specialists numerate. The 'sides' theory is therefore supported. Any attempt to plan one 'general course' in which (or in parts of which) all would find what they need, is rejected. Specifically the 'integration' theory is rejected -- 2 arts subjects and one science subject for the arts specialist, and 2 science subjects and one arts subject for the science specialist. The writing of examinations in the general education subjects proposed is also rejected. "How can we so arm these subjects that they are able to survive in a curriculum dominated by the jungle law of the survival of the fittest?" The answer given is: through the headmaster's insistence that he and his staff think it important, and the hope that prospective employers, universities, and colleges of advanced technology[1], will attach significance to it; which reply produces a great feeling of anti-climax.

The Linstead report also recommends retention of the 'sides' theory. The report deals only with the science 'side', and no suggestion is made of even one A level arts subject. The percentages of the timetable recommended are as follows:

	3 years below the sixth form			First 2 years of sixth form	
Age or form	13-14	14-15	15-16+	VI(1)	VI(2)
Maths. & science	27.0	35.0	27.0	54.0	59.0
Non-sc. subjects	65.0	57.0	55.0	24.5	19.5
Study periods	-	-	-	16.0	16.0
Phys. ed. & games	8.0	8.0	8.0	5.5	5.5

[Linstead, pp. 20,27]

The above model timetable for the three years below the sixth form (third, fourth and fifth forms) broadly follows present average timetable figures. A third sixth form year, as spent at present, does not lend itself to the development of breadth in the education of the aspiring scientist or engineer. The percentages above for the first two years in the sixth form represent an increase from the present 5 to 7 periods

1. The colleges of advanced technology in point of fact are leaders in the field of general education in Britain.

per week for non-scientific subjects to a proposed 10 to 12 periods per week. Where is the time to be found? The general consensus of the opinions of headmasters and headmistresses was that out-of-school activities, very valuable in their own right, were no substitute for formal provision within the curriculum for non-scientific studies. Formal provision is necessary to give non-scientific studies the stamp of importance, and because out-of-school activities are followed least by those who need most to redress excessive specialization. The essential solution lies in the reduction of overcrowded syllabuses: the time allotted to physics, for example, can possibly be reduced by 10 to 15 per cent. [Ibid., pp. 24 - 32] A substantial minority of candidates (some 30%) in 1958 had 4 or more passes in mathematical or scientific subjects at Advanced level, although a maximum of 3 is invariably recommended. [Ibid., pp. 93, 25] The Crowther report calls this'a formula for getting the worst of all worlds'. This results from undue pressure on university places and the hope (not unfounded) that a fourth pass may improve the chances of admission. Furthermore, for the same reasons, in 1958, 22 per cent of the successful A level candidates in mathematics from boys' maintained grammar schools had already passed the same subject at least once before, and 20 per cent of the successful candidates in science had passed a science subject at least once before. The figures for girls at maintained grammar schools were 13 per cent and 7 per cent respectively. [HMSO, 1959, p. 250] Sometimes candidates repeat their A level work, with S level work on the same syllabus, during a third and even a fourth year in the sixth form. Students thus concentrate on the acquisition of factual information and have not yet begun to develop critical habits of thought or an appreciation of general principles. As a result there is loss of time for, and perhaps of interest in, the wider issues of art, economics, history and literature. [Birmingham, 1959, p. F6]

It is important to study closely the recommendations of the Linstead report for general education in schools, because it is on the basis of these proposals that the authors accept that no change is likely to be made in

universities before 1975 with regard to the present 'excessive claims of specialist subjects on the time and energies of undergraduates'. [p. 22] In this connection, Peterson's view should be noted: "It is ..... a feature of recent discussion of general education in England that the Universities have tended to relegate it to the Schools, while the Schools, or at least the most influential among the Headmasters, have tended to postpone it to the Universities." [Peterson, 1960, p. 12] The authors of the Crowther report say: "Schools and universities agree in theory on the need for a balanced education; in practice, however, they refuse to will the means, and therefore must be held to deny the end." [p. 269]

It is sometimes assumed "that there was once a golden age when the schools gave a balanced general education which enabled the student to specialise at the university without detriment to his general development. We doubt whether there was ever such a time. Fifty years ago, when the classics attracted a far higher proportion of ability than they do today, the boy in the classical sixth devoted more of his time to that field of study than his grandson would devote today to any specialised field of sixth-form work. Curricula are broader, not narrower, than they were then." [UGC, 1959, p. 39]

4.33. The Peterson report.

Peterson supports the 'integration' theory. [pp. 15 - 17] He accepts that a sixth form course must be specialized. He wants a place however, not for general knowledge, but for general education -- not in terms of wide superficial knowledge, but in the general development of the understanding in the main modes of human experience. This, he says, is no reversion to the doctrine of separate faculties. He starts with the distinction made by Conant in his introduction to the Harvard report between statements which are judged to be true or false and results which are judged to be good or bad, and distinguishes four main categories of mental experience: in the first section, the logical and the empirical; in the second, the moral and the aesthetic. A student who had received such a general education

would not thereby be for all his life an 'educated man', but rather ..... he would have been set on the road to becoming one. It is evident now why the old classical curriculum achieved such recognition. It covered a wide variety of subjects -- language, literature, history, even some archaeology and textual criticism -- and so gave at least some play to all the main modes of thinking.

Peterson would now divide the 35 periods per week into 5 blocks of 7 each. The first would be English language and literature, and the second mathematics. The great majority of pupils would include these two blocks in their timetables, and so ensure that neither the moral nor the aesthetic nor the logical development of the intellect was neglected, as may happen now. In some cases another language would take the place of English, and 'the very small number of the mathematically blind' might substitute for mathematics a descriptive science (e.g. biology or geology which need little mathematics) or another language. The third block would be one of the natural sciences, and the fourth would be history or a language. The normal division between arts and science would be 2/2: a small minority would split 3/1. "What would not be acceptable is the division, commoner than many people would suppose today, of 4/0."

Much has been said, in defence of the English rather than the European, sixth form course about the value of the whole course forming a unity and about the iniquity of studying 'unrelated subjects'. Physics, chemistry and mathematics form a unity, it is said; and so do English, French and history. Peterson doubts whether the supposed degree of transfer will take place, even in 'allied' subjects, and recognizes that it is less likely to in his 2/2 and 3/1 cases, unless explicitly planned. "Possibly because all our sixth form teaching is so closely derived from the methods of the unified classical course, we have too readily assumed that 'a unity' in the subject matter will automatically be transferred to the mind of the pupil. Once we realise that he must be consciously helped to see the unifying factors, then perhaps we can aim at the far more important task of helping him to build a unity out of diversity. After all a sense of unity imposed

by limiting the gaze to a narrow field might, even if it were acquired, prove in the long run more of a hindrance than a help. This is where the fifth block of seven periods in our programme has an essential part to play. If sixth formers are to begin to get a conception of the true unity of knowledge -- not the artificial unity created by limiting their experience to one aspect -- then the differences in the different modes of mental activity must be made explicit to them." [p. 18]

"I see no reason why this philosophy or methodology course should occupy more than two periods a week. It is not intended to convey information of any sort. It does not matter if the pupil has never heard of Leibnitz, Marx or Leonardo, provided that he has begun to understand how scientists reach their conclusions, how a mathematical truth differs from a moral one and what is meant by poetic imagination. This sort of insight can surely best be given by the comparatively detailed discussion of one or two case histories or works of art particularly where they are related to the subjects in which the pupils are specialising. Sixty hours spread over two years should be long enough for this and the moral effect of a more serious explanation of the reason for which they are studying their special subjects might have something of the effect produced on soldiers in the last war by taking the troops into the confidence of their commanders."

"How then should the remaining five periods in this fifth block be used? One or two will be needed for religious knowledge: in view of the philosophy and methodology course I would reluctantly be prepared to settle for one -- but no one would be excused from it to do extra physics for a scholarship. Two will probably be required for physical education (this is probably where the public boarding schools will save the extra periods needed to make possible their shorter working week, since they have the afternoons at their disposal). And two should be reserved for the practice of music, painting, pottery or one of the other arts or crafts." [pp. 18, 19]

Peterson then goes on to consider some possible objections to his proposals, of which the first only is

of concern here. The brightest (top 6%) boys and girls, it is claimed by objectors, develop what the Crowther report calls 'subject-mindedness' at 15 or 16: they are able to specialize, and they want to specialize, in arts or science -- but not both. They will resent the forcing on them of other subjects. Peterson quotes authorities in the field of educational psychology -- British and American -- to advance a contrary view, and he conducted a special enquiry in England, Germany and France in this connection. He concludes that there is little substance in the objection. [pp. 20 - 27] Earlier, he says: "It is very doubtful ..... whether the Crowther report's picture of the able sixth former embracing eagerly some one aspect of human knowledge at 15 and then 'coming through' subject-mindedness at 18 is an accurate one. An alternative interpretation would be to say that the ablest pupils tend to have the widest range of interests; that the present structure of the English sixth form forces them into a narrow specialisation between 15 and 18 simply because it does not allow time for the adequate development of other interests; and that sometimes around the age of 18 they rebel against this artificial limitation." [p. 12]

4.34. The outcome of these reports.

Peterson, writing in the Times Educational Supplement [1961, July 7, p. 11], sixteen months after the publication of his report said that three conferences had been held at Oxford during the winter of 1960-1961, and many discussions. The plan 'has had a long, serious and fair discussion and now must be taken to have been rejected by the schools', he concluded. It appeared to him that opposition came not so much from universities, as from the schools who at one time submitted under university pressure to shackles from which they were now not particularly anxious to be freed.

This may be the view of headmasters, but the Incorporated Association of Assistant Masters in Secondary Schools [Times Educational Supplement, 1962, Nov. 2, p. 569] expressed the view that there is 'a desire to give pupils a varied and balanced education'.

The Committee of Vice-Chancellors and Principals

of the Universities of the United Kingdom appointed a sub-committee to enquire into university entrance requirements. [AUBC, 1962, pp. 13 - 16] The sub-committee recommends an alteration in balance between general and special studies in the sixth form, placing more weight than hitherto on the former ..... "The universities have tacitly abandoned their former requirement of a broad intellectual training and nothing else as a condition of entry. They have substituted for it a primary demand for competence in subjects of special study, and evidence of general education has become a secondary requirement, the test for which is made before the beginning, not at the end, of the sixth-form course. The sub-committee would not wish to displace competence in subjects of special study as the major object of sixth-form attention. It would be unrealistic to do so. Nevertheless it feels that universities and schools ought no longer to rest content with assigning to general studies, for those seeking university entry, such a lowly and ineffective place as they now occupy at sixth-form level. It suggests that the universities recognise, encourage and test them." To secure this purpose at least two papers should form part of a general requirement: 'Use of English', and a 'General paper'.

The Secondary Schools Examinations Council reporting in 1960 [SSCE, 1960, p. 2] said that pressure of university admission means 'that the curriculum is in danger of becoming seriously overloaded, and specialisation carried to a point at which general education is in jeopardy. In a further report [SSCE, 1962] published after that of the universities sub-committee [AUCB, 1962] the Council makes the following comments. The fundamental problem is shortage of university places, and it is right to feel concern about the consequent effect upon the standard of general education. Examinations in general studies are however opposed, largely because such progress as is being made is through experiments, and schools should have freedom to match their practice to their resources. Furthermore, examination preparation would inevitably make inroads on an already inadequate time for study. In this regard, it is suggested that a test of the use of English and a test of general education could be

combined into one paper. It should be noted that throughout the report it is understood that general education would be followed in 'minority time'.

The Incorporated Association of Assistant Masters in Secondary Schools has published a booklet entitled General education in grammar schools. [Assistant Masters, 1962] It aims to show what is being done in grammar schools with respect to general education. "Many of our correspondents have been puzzled by the term 'general education' because they are not aware of any special effort to do now what they have always done -- their best to give the boys in their schools a good education. Such men have a deep sense of duty and a natural interest in boys; to them intellectual training has been an important aspect of their work but only one aspect. Fortunately for the boys, there is no need in schools with devoted men to make marked changes to deal with what some present as a 'new' situation.

Throughout our grammar schools, so much is attempted and so much achieved only because of the grammar school tradition of service. Much older than 'literacy' and 'numeracy' is the tradition that a master shares his own interests with his pupils, that he leads or supports activities outside the classroom, outside the school boundaries, often completely outside his own subject. To the tradition of encouraging the older boys in our schools to develop their interests and become persons rather than specialists is due so much of the enterprise and experiment quietly at work in our grammar schools today." [Ibid., pp. 7, 8] This statement explains the very considerable prestige enjoyed by British grammar schools and especially by their sixth forms. But the account does little more than list subjects taken in minority time in order of frequency: (i) current affairs or civics, (ii) music and art, (iii) continuation of O level subjects not being taken for A level examinations, (iv) languages, (v) a miscellany of subjects. [Ibid., pp. 32, 33]

It is evident that it is too early (1963) to see the final outcome of the many reports referred to above.

4.35. British and American schools: some comparisons.

The differences in purpose and practice between

Europe and America are brought out in the following quotation from the Crowther report. [p. 258] "American and continental practices are united against the English in being non-specialist, [but] there is one important respect in which England and the continent take the same side against America. In Western Europe, as in England, the secondary school is traditionally concerned with educating an élite, an intellectual aristocracy on whom the most stringent academic demands can be made and in whom there can be awakened a real love of learning. It treats them as adults capable of a reverence for knowledge, beginners in a lifelong quest for truth, which they can share with those who teach them. This outlook is shared equally by the professeur in a French lycée and the English Sixth Form master, widely though they differ in their actual methods of teaching. The intellectual task of an American Senior High School differs entirely from that of an English Sixth Form, because it is not dealing with, and would not wish to deal with, a segregated few. Not only is the climate of public opinion strongly against the segregation of the abler pupils into selective schools (though there are some recent signs of a willingness to consider this), but the standard pattern of an American High School does not even allow for the segregation of pupils inside the school into faster and slower streams. All are educated together, and there is an emphasis on problems of individual adjustment to a mass society which we would regard as more appropriate to the modern school than to the grammar school, whose pupils' characters, (so, rightly or wrongly, the English tradition insists), can be trained simultaneously with their minds by the 'full rigour of the academic game' and the freedom of out-of-school activities. Thus while the English grammar school differs from the American High School both in its methods and in its objectives, our difference from the Europeans is chiefly one of method."

The implication here is that there are few if any American schools with students on whom 'the most stringent academic demands can be made and in whom there can be awakened a real love of learning, ... [who can be treated] as adults capable of a reverence for

knowledge, beginners in a lifelong quest for truth, which they can share with those who teach them'.

No evidence is offered here to the contrary, but it is certainly doubtful whether there is any evidence that this is true of schools in America preparing students for Harvard and Yale, by comparison with schools in England preparing students for Oxford and Cambridge. It might be difficult to lay down criteria for an objective comparison of the élite of American schools and the élite of European schools. Age statistics are however available for the average school-boy and school-girl. Conant says that over 70% of American seventeen-year olds are in school. [1959, p. 6] 90% of the nation's youth between 14 and 17 are enrolled in high school, and the remaining 10% are mainly among the coloured population of the southern states. [Warren, 1963, p. 5]

The numbers of boys and girls under 18 who were receiving neither full-time nor part-time day education in England and Wales in 1958 are given in this table: [Crowther, 1959, p. 164][1]

Age	15	16	17	15 - 17
Boys and girls: %	49.4	61.9	72.6	60.6
Number: (000)	298	331	397	1,026

The authors of the Crowther report make "a formidable list of recommendations ..... We cannot in conscience advise that anything less is necessary if the national educational system is to meet the requirements of this tumultuous and dynamic century. Already there is some danger, we think, of English education lagging behind the times. Even in the education of our brightest children -- which is what the English system does best -- there is still a grave waste of talent through too early an abandonment of formal education. We do not think that the figure of about 12 per cent of the age-group still in full-time education at the age of 17, and of 6 per cent at 20, is nearly good enough. The education that is provided for the great mass of children is inadequate both in its quality and in its duration. In the middle, between the brightest

1. This is a summary of a fuller table to be found on p. 6 of the Crowther report. The percentages not in full-time day or part-time day attendance for age 18 are: boys 74.1 and girls 92.4. From these percentages might be subtracted: part-time evening attendance at age 18 -- boys 17.8 and girls 14.9.

quarter and the great mass of ordinary children, the deficiencies, relatively to the need, are greatest of all, for it is in this 'second quartile' that the richest vein of untapped human resources lies, which will have to be exploited if this country is to keep a place among the nations that are in the van of spiritual and material progress."

General education is needed not only by university undergraduates, but also in school by those who do not go on from school to college. Can this be doubted if the quality of mass circulation newspapers is studied? Whether general education should come in undergraduate years, or school years, or both is discussed in chapter 8.

4.36. General education at the secondary level in the U.S.A.

The recommendations of Conant in The American high school today [1959] will serve to describe the views of the father of the Harvard report about the general education content of secondary curricula. The American tradition, he made clear, favours 'comprehensive' high schools in order to avoid the separation of students of different intellectual abilities and vocational goals. European schools, on the other hand, select the best 20% from elementary schools and prepare them for a university education. Not all achieve their goal, but those who do, he admits, "finish with a mastery of two foreign languages, a knowledge of mathematics through calculus and of physics and chemistry at the level of our sophomore college courses." He adds: "No one has estimated how much potential talent goes undeveloped in Germany, France, Italy, and Switzerland because of the early selection of the pre-university students -- a selection often influenced by the class system of European lands." [p. 2] The essential question of Conant's book is: "Can a school at one and the same time provide a good general education for all the pupils as future citizens of a democracy, provide elective programs for the majority to develop useful skills, and educate adequately those with a talent for handling advanced academic subjects .....?" [Ibid., p. 15]

He believes this is possible, but the part of the question which is of concern here is his allocation of

time for general education. Here it must be remembered that the table on page 157 of this paper gives figures for third, fourth, and fifth forms usually leading to the sixth form, of which the main distinguishing mark is a close link with the university. The following recommendations should be compared with the curriculum of a British modern school, not a British grammar school. Conant recommends a minimum general education program of 4 years of English (of which half of the time should be devoted to composition), 3 to 4 years of social studies (including 1 year of American history and one other of history, and one senior course in American problems or American government), 1 year of mathematics, and 1 year of science. To this total of 9 or 10 courses (with homework this represents half the total time or more) would be added 7 elective courses (excluding physical education, but including art or music). A year-course means 5 periods per week, usually of 45 minutes each. [p. 47] For the academically talented - and here the comparison is with the British grammar school - he proposes 4 years of mathematics, 4 years of one foreign language (not 2 years each of two), 3 years of science, plus the above 4 years of English and 3 of social studies. This represents a total of 18 courses covering 4 years, and homework up to 15 hours per week should be added. Possibly a second foreign language and a further social studies course might be taken, and also art or music. [p. 57]

Conant recommends ability grouping by subjects, but not 'across-the-board'. All should take together at least one subject. He prefers comprehensive high schools, but discusses the problems of small high schools, high schools in large cities (usually in large cities vocational schools are separate from academic schools), and suburban high schools (i.e. college preparatory schools). He does not approve of tests as early as 11+; these may distinguish the bright and quick, but not the hardworking and talented, and may make inadequate provision for the late developers. The United States prefers to postpone specialization, choice of career, and decision about university entrance -- and, it must be added, American parents can better afford financially to do so than European parents.

The concluding question of Education and liberty poses the problem of combining the British concern for training the 'natural aristocracy of the talents' with the American insistence on general education for all future citizens. This too is the concluding question of General Education in school and college. [Aelhpy, 1953, p. 121] How is it possible to resolve "the 'Jacksonian' ideal of extending the benefits of education as far down the scale of ability as it is possible" with "the 'Jeffersonian' conception of the right of every able student to the best education from which he is capable of profiting"?[1]

4.4. BREADTH IN THE CURRICULA OF BRITISH UNIVERSITIES.

4.41. The University College of North Staffordshire at Keele.

A return must now be made to general education in England and Wales, with reference to universities and colleges. The only one which has a thorough-going general education program is Keele, and it is dealt with therefore at some length here. This University College opened in October, 1950.

"To those who founded the College it seemed urgent to check the increasing move towards specialization -- more especially the concentration at university level on a single subject. School curricula had become increasingly dominated by the demands of preparation for the single honours school and for the scholarship examination leading to it. There would have been little hope for government support, which was essential to the new College, had the proposal been to establish another university college of the existing kind; but a brave experiment in a broader university education was a challenge for enlightened help, and this was forthcoming."

The Charter allowed the College itself to grant the degree of Bachelor of Arts, with or without Honours. "This was unique among university colleges; all others prepared their students for the degrees of the University of London, and their curricula therefore had a common pattern. This was not to be so at Keele. The

1. The Harvard report poses the same question in similar terms on pages 31 to 35.

prime object of the education given at the College was to break down the rigid departmentalism and undue specialization which has grown up in other universities." The budding scientist would not be allowed "to concentrate on technical efficiency to the exclusion of cultural development ..... The increasing impact of science on modern life demands from its statesmen and its civil servants ..... some knowledge of the possibilities of science and ..... the industrial and economic changes likely to flow from scientific discoveries."

To give advice on the many problems of academic policy that would arise, three universities (Oxford, Manchester and Birmingham) agreed to act as sponsors to the College, and appointed members to an Academic Council, charged with supervising the College's academic standards.

A further distinctive feature of Keele is that all staff and students must live in residence (with few exceptions).[1] "The College at Keele may be said to draw upon one of the oldest conceptions of university life, the pursuit of knowledge in different departments by masters and scholars living in a single community, while pursuing its aim of providing an education suitable to present day needs and opportunities."

The most important feature of Keele for this present study however is that it provides a foundation year before the three principal years.[2] The total length of the course is thus four years instead of the usual three. A pass with honours is a matter of obtaining a specified standard. The pass degree and the honours degree are both of 4 years duration. In spite of the extra year -- perhaps because of the extra year --, there were as many as 1440 applications for the 170 places available in October, 1957. No exemptions from the foundation year are permitted. This year is designed "to give the student at the outset of his

1. In the year 1957/8 the percentages of full-time students in colleges or halls of residence was: Keele 96%, Cambridge (whole university) 55%, London (whole university) 18%. In 1955-56, 27.5% of British university students were in residence, and 44.7% in lodgings; 27.8% lived at home. [Linstead, 1961, p. 57] In 1959, 33.3% of American students in public universities were in residence, and 42.3% of students in privately controlled universities. [Rork, 1962, p. 57]
2. ..... sometimes known as FY, 2P1, 3P2 and 4P3.

career a view of the main subjects of university study, and by presenting the fundamental inter-relation to guide him to a selection of subjects forming the degree course proper."[1] (The information in the above paragraphs is from [Keele, 1958]).

A description of the B.A., curriculum for FY, 2P1, 3P2, 4P3 follows. First, however, it should be noted that certain variations are necessary for those preparing for the B.A. degree with Diploma in Education, or with Diploma in Social Studies. [Keele, 1961-62, pp. 49, 52, 53] Furthermore students who have specialized in the humanities in the sixth form at school, and have no General Certificate of Education advanced level pass in a science (but do have an ordinary level pass in a science) are encouraged to consider transferring to science. Such students take during FY an additional science course, so that they may during 2P1, 3P2 and 4P3 take one science subject as a principal subject. [Ibid., pp. 27, 28]

During the foundation year a series of about 200 lectures is provided in which all of the professors, as the heads of the 16 major departments, take part. "They are designed as a whole to introduce the student to some of the methods and information necessary to an estimate of the inheritance, the problems and the achievements of modern Western European man.[2] The course is divided into three sections. The first section, entitled 'Background and heritage of modern society', attemps to set western man against an appropriate background of space and time. The first part of this section deals with the structure of the universe, and of the earth and with the evolution of life in these conditions; the second part summarizes some of the achievements of western man from the Greeks to the industrial revolution. The second section is

---

1. See p. 35, where the following quotation from the Linstead report [p. 60n] appears: "At Keele, where no student is permitted to make his final choice until after the Foundation Year, 64.7 per cent of first year students in the 1958/59 session changed from their original intention in regard to one of their required two principal subjects, and 10.3 per cent changed their mind about both."
2. A full list of the 214 lectures for the 1960-61 session is given on pages 57 to 63 of [Keele, 1961-62]. A list of recommended books from which students should select, is given on pages 64 to 66: students are expected to read some of these before coming to Keele for the first time.

entitled 'Western society in the industrial age'. After starting by emphasising the pivotal importance of industrialization in the development of modern society, this section contains short historical, sociological, political and economic analyses of modern society. The third section attempts to survey, analytically rather than historically, the achievements of the human mind, particularly in modern times. Its three parts survey in turn: the literary and artistic heritage of England and Europe; the progress, findings and social significance of modern science; and, in a final section devoted mainly to music and the arts, some of the current problems of human expression and communication." [Ibid., pp. 26, 27]

Each student must attend each week a discussion group on the lectures of the week. The discussion lasts about one hour. About 6 students participate under the guidance of 3 lecturers, one expert in each of the three fields covered by the lectures. The topics dealt with in the lectures are followed up in tutorial work undertaken concurrently with the lectures. The main principle underlying the organization of tutorials is to achieve a balance between thoroughness and width of study by working from the individual student's initial interests to less familiar spheres. The student normally attends three tutorials weekly, one in each of the three main groups, A (humanities), B (social sciences), and C (experimental sciences).[1] A sessional tutorial means a tutorial in one subject for a whole year: a terminal tutorial covers one term only. A student who has specialized in group A subjects at school will attend 3 terminal tutorials in group A subjects (one at a time in each of 3 successive terms): 2 tutorials will probably cover subjects taken at school and the third tutorial may be a new subject. He will also attend throughout the year 2 other tutorials per week, one in a group B subject, and one in a group C subject.

---

1. A: English language and literature, history, Latin, Greek, French, German, Russian studies[x], philosophy, historical theology[x].
   B: Economics, political institutions, geography, social studies[x], political and moral philosophy, theory and practice of education[x], psychology[x].
   C: Mathematics, physics, chemistry, biology, geology.
   x: subsidiary subjects only.

Similar arrangements are made for students who specialized at school in group B subjects or in group C subjects.

Two 3 hour examination papers are set on the lectures. In the first a selection of questions is allowed, 4 out of 33 in June, 1961. Students must answer at least one in each of the fields A, B and C. In the second there are 2 sections, one largely on the humanities and natural sciences, and one largely on the natural sciences. In the second paper questions are deliberately asked which involve crossing the border line between subjects.

One 3 hour paper is set on each of the 2 sessional tutorials. There are no examinations on the 3 terminal tutorials: tutors however make reports on the work of students.

For the purposes of this study, interest is naturally concentrated on the foundation year. However, during the 3 principal years, all students must study at least 4 subjects, usually 2 (not less than 2) as principal subjects taken each year during 2P1, 3P2 and 4P3, and usually 2 as subsidiary subjects. Subsidiary subjects are selected on the advice of the professors of the principal subjects. Breadth in selection is achieved through the following regulations. If 3 principal subjects are chosen, not more than 2 may be selected from any one group. At least one subject, either principal or subsidiary, must be chosen from groups A and B combined, and at least one grom group C. Subisidiary subjects are ordinarily taken in 2P1 and 3P2, and must normally be completed before 4P3, which is devoted to the principal subjects. Both principal subjects are normally from the same group, but students have in the past selected combinations such as chemistry and economics, physics and philosophy, geology and geography, biology and geography. One student, looking for a post in advertising with the Shell Company, studied chemistry and English.

In spite of the evident success of the Keele program, nevertheless, because of the practice of a considerable degree of specialization in English universities (and schools), sometimes an almost defensive note about Keele is sounded. "We believe

that the graduates of Keele who have offered, say, chemistry as one of their two principal subjects will, as a result of the residential college life, the foundation year and the relatively wide degree courses, be found to have gained much more in breadth of culture, understanding and adaptability than they may have lost through not acquiring quite the detailed and specialized information over a very wide range of advanced chemical topics available in a 'single subject' honours chemistry course. Our degrees are given the same weight as those of other universities in qualifying for exemption from the examinations of the professional societies, such as the Institute of Physics. Moreover, our graduates with first or second class honours in, say, chemistry - physics have in practice no more difficulty in undertaking post-graduate work for the higher degrees of Birmingham or Manchester Universities in either chemistry or physics (according to bent), than have the corresponding 'single subject' honours graduates of those Universities." [Springhall, 1960, p. 4]

Two foundation year examination papers appear at the end of this chapter. (See pages 232 to 235).

4.42. Provision for general education at certain other universities and university colleges in Great Britain for scientists and technologists.

The Linstead report provides information about 13 universities or colleges. After Keele, the drop in provision of true general education is striking. The only programs discussed in the Linstead report (except for that at Keele) which would not be defined as pseudo[1] general education in the terms of these pages are the following.

University College, Swansea.

"All undergraduates are required to attend during their first year a course of lectures on a subject outside their own field and to discuss each lecture in groups afterwards. They are also required to write four essays on general topics during their first year, and to read three of them to tutors and one to the

---

1. 'Pseudo' general education is here defined as non-specialist courses provided for their vocational relevance, and not for their value as general and broadening education.

principal. A total of 2 hours a week was estimated for these arrangements. [Linstead, 1961, p. 44] Mr. J.S. Fulton, who was Principal of Swansea, in a verbal reply to a discussion on a paper he delivered, said of this experiment in general education: "We required all freshers to go to a course of lectures on the great figures of the nineteenth and twentieth centuries -- the people who made us think differently from the way in which our grandfathers thought -- in science, in psychology, literature, and so on. They did not particularly like it. We persuaded lecturers to come from all over the country and although, as one would expect, individual lecturers were very successful, the undergraduates did not take to the idea. The other thing which we tried to do was to make them write essays on general topics. There I think we had more success. We got one woman and three men (that was the ratio of the sexes in that institution), two scientists, two arts people, to write an essay on some topic of the day, and discuss it in the company of a senior person. That is to say, they could discuss some such subject as capital punishment, as it appeared to them as scientists, or statisticians, or in whatever way they liked. When cross-examined, they defended the system of essay writing strongly though they had to take more trouble over them than in attending lectures." [Fulton, 1961, p. 852]

In addition students studying mathematics for a B.A. degree have to take one of the following subjects: economics, English, history, languages, philosophy, or politics. No such compulsion is enforced in the case of physicists, chemists, or general scientists. Mechanical and electrical engineers have to take economics in their third year and this takes up 2 hours per week. This is the only case of a compulsory non-scientific subject outside of the first year. In addition, certain optional non-scientific subjects are available: in every case only a negligible proportion of students do choose one. [Linstead, pp. 133 - 147]

Birmingham University.

The only provision for students of mathematics, physics, chemistry and general science is: for general scientists, one optional subject in the first year,

requiring 3 hours per week -- logic and philosophy, or philosophy, or geography. 15% do take one of these three subjects. Compulsory foreign languages as studied in these 13 institutions do not fall within the definition of general education of these pages.[1] Electrical engineering students must take 'Economic history and industrial relations', and also 'Social and economic effects of technology'. English also is a compulsory subject. About 4 hours per week are devoted to these subjects altogether in the various years. Mechanical engineering students in their third year must attend a discussion group on non-scientific subjects (one hour per week), and study economics in their second year (one hour per week). [Ibid., pp. 139 - 147]

One of the main exponents of broader education in a technological department at the University of Birmingham is Professor D.G. Tucker, Professor or Electrical Engineering. He notes that colleges of advanced technology may devote 15 to 20 per cent of total course time to liberal studies. Nothing of this order is contemplated in universities. The need, he says, is widely accepted; the difficulty is in providing it.

The provision of time is usually quoted as a major obstacle. "It is argued that the complexity of modern science and technology makes it desirable to add more technological subjects to the syllabus rather than to remove any. In my view, based on over 20 years' experience as a practising engineer before coming to the university as professor, these arguments are entirely fallacious. A great deal could be removed from any technological syllabus with quite negligible effect on the technologist's career. It is very doubtful, for example, if even 1 in 10 university-trained engineers ever makes use of the advanced mathematics he 'learns'. This is, of course, partly because there is no need to use it, but it is even more markedly due to the fact that the technologist is unable to use it. He has passed examinations in mathematics, he has been shown examples of those mathematics applied to technological problems, but he has been unable to learn to think

---

1. "A few university bodies pointed out that the study of a foreign language was prescribed for their science and technology students only in order to enable them to read foreign technological literature. It seems reasonable to suppose that this policy was general." [Ibid., p. 50]

of new problems in mathematical terms. In my view there is no case for increasing the technological and scientific content of undergraduate courses, and present courses can stand considerable pruning. This is not to say, of course, that more advanced technological and mathematical courses should not be given. They should indeed be given, but at the postgraduate level, to students who have had some experience in engineering after initial graduation." [Tucker, 1959, pp. 157 - 163]

The open lecture at lunch-time at Birmingham University, after an unencouraging first year or two, by 1959 became a great success, attracting sometimes half the university population. But in a large university, it is the staff of his department a student knows best, and it is at the departmental level that efforts in broader education must have effect. The staff must show they believe such broadening important, and the starting point of breadth must be the student's technological subjects. Some form of examination (formal, or by vacation essays) must be provided, otherwise students think these activities unimportant. At Birmingham a pass mark is a condition of award of the degree.

The brief description in the first paragraph above (from the Linstead report) should be amplified by means of the following details. Discussion groups on ability to speak and write English well (following an essay on some provacative subjects) were enjoyed. Two series of lectures on 'Design in engineering' (10 lectures) and 'Government and management in relation to the technologist' (8 lectures) were organized by the department.

The final year lecture series of 35 lectures is intended to provide some measure of integration of the historical, sociological, economic and scientific background of technology.

In 1955 the Senate appointed a committee "to consider whether, in their contribution to a broader education of students, the courses [and] the arrangement of courses ..... are satisfactory." The first paragraph of the committee's 'statement of the problem' reads as follows: "The fact of specialisation in University studies at the undergraduate level has now

to be accepted as not only inevitable but also desirable. The older academic ideal of the synoptic man has had to give place to the modern notion of the expert, and with the ever increasing scope of human knowledge it is hard to see how things could be otherwise. On the other hand, a student, however competent he may be within his own field, cannot be regarded as educated if he knows little or nothing, and wants to know little or nothing, of the great issues of religion, politics, art, science and literature." The committee did not however recommend special, obligatory, examinable courses, but hoped the broadening of education would come from teaching of specialist subjects deliberately aimed to achieve just this. "Teaching ..... covers a wide range of activity. At the one extreme there is the formal lecture, and, at the other, the conversation between teacher and student. In between come the discussion group, the seminar, the tutorial, the essay class and a host of other devices." The committee attached great importance to student residences, and hoped each undergraduate would be able to spend at least one year of his course in residence. The committee hopes that the students' Union will become a centre for intellectual life as well as for social life. [Birmingham, 1956]

Glasgow University and the Glasgow Royal College of Science and Technology.

The Glasgow Royal College requires all associate students to take 'General studies' for one hour per week in the first year. B.Sc. students do not take this course. [Linstead, pp. 140, 145] At Glasgow University the only compulsory general education appears in the first and second years of the M.A. (honours) course in general science. 5 hours per week in the first year and 5 hours per week in the second year are devoted to two of the following subjects: economics, English, history, languages, philosophy, politics, economic history, law and logic. A third subject from the above list must be taken in the third year of the ordinary M.A. course (9 hours per week): the 3 subjects must include between them a language course and a philosophy course. [Glasgow, 1961-62, pp. 119, 128, 129]

The Linstead report does not deal with arts (humanities) students. A candidate for the degree of M.A. with honours at Glasgow University, must attend four qualifying courses in the subjects of his group, and two outside his group. Science group candidates must take at least one arts subject. Arts group candidates are not compelled to take one science subject. [Ibid., pp. 119, 128, 129]

Cambridge University.

The three Colleges of Cambridge University which contributed to the Linstead enquiry (Emmanuel, Gonville and Caius, King's) require of physicists, chemists and general scientists an essay on the'Principles, history and philosophy of science'. Electrical and mechanical engineering students are required to write a general essay on 'Engineering practice', and 'Industrial organization and relations', or -- a surprising alternative -- on aesthetics. [Linstead, pp. 133 - 147]

London University.

The Imperial College of Science and Technology requires chemists to devote about 2 hours per week to English in their third year; and mathematicians 2 hours similarly to history and philosophy of mathematical science. In addition third year engineers may take 'Industry, labour and economics': 100% of electricals do so, and 40% of mechanicals(3 hours per week). The lecture program is discussed in ch. 8. University College requires third year electrical engineering students to devote 4 hours per week to 'Engineering economics' or 'English exposition and law'. Mechanical engineers may do so: in fact, none chose to do so. Bedford College (London) has no compulsory non-scientific subjects (except modern languages). [Ibid., pp. 133 - 147]

Leeds University.

Mechanical and electrical engineering students must take 'Applied economics and industrial management' (2 hours per week for one year). [Ibid., pp. 133 - 147]

Southampton University.

There are no compulsory non-scientific subjects

(except foreign languages), although the University reluctantly came to the conclusion that attendance by freshmen at the open lectures would have to be made compulsory from the beginning of the 1959/60 academic year. [Ibid., p. 81]

4.43. Some general comments.

These thirteen universities or colleges were chosen "as broadly representative of all the university bodies in receipt of Treasury grant: they include two of the five Northern civic universities, one of the five university colleges which have achieved university status since the war, two of the three university bodies entirely devoted to mathematics, science and technology, and Keele, established in 1950 and separated by many centuries from the mediaeval universities, represented by three Colleges at Cambridge and the University of Glasgow." [Ibid., p. 40]

The summary given in the preceding paragraphs gives all the compulsory subjects required in these thirteen typical universities or colleges (except foreign languages) for mathematicians, physicists, chemists, general scientists, and electrical and mechanical engineers. Where a statement appears, for example, that such-and-such a course is required of general scientists, this means that (unless otherwise stated) no such requirement exists for the other five groups. Some of the subjects are on the borderline of true general education -- such as applied economics and industrial management, engineering economics, engineering practice, and industrial organization and relations.

It is evident therefore that except at Keele and Swansea, relatively few of the 6 groups of students at these 13 institutions have a compulsory requirement in general education even for one year. Whether compulsory or not, these non-scientific subjects (and foreign languages are included in this statement) rarely take up more than 2 hours per week and are in most courses confined to the first year. When optional, they succeed in attracting only a small minority of the students. [Ibid., p. 57] In America examinations are held in all general education courses. In Great Britain, of the compulsory courses, some are examined,

and some require only regular attendance. The majority of witnesses which appeared before the Linstead Study Group recommended compulsion for non-scientific subjects, and that the subjects be examined. [Ibid., p. 84] The Study Group recommends compulsion with respect only to English and foreign languages; and that foreign languages should be studied not only to enable students to keep abreast of foreign technical literature, but also to achieve a more sensitive feeling for the meaning and use of words and to develop power of expression. A third aim -- to promote overseas sales -- cannot be considered one of the academic purposes of general education! With regard to subjects other than these 'communication' subjects as was observed on page 39, "the less direct the vocational relevance of [a] a subject, the weaker appears to be the argument for its inclusion in first-degree courses." [Ibid., pp. 78, 79][1]

It should be remembered, firstly, as has been seen earlier in this paper, that the Linstead report recommends greater provision for general education in the sixth form. Secondly, the report does recommend greater extra-curricular provision for general education. Recommended activities are regular lectures on the widest variety of subjects: probably weekly and specially arranged at a convenient time. The authors of the report hesitate to recommend compulsory attendance, although voluntary attendance 'was often as low as 5 or 10 per cent. No university averaged more than 25 per cent, and it was argued by some witnesses that it was the student who most needed help who stayed away'. [Ibid., pp. 80 - 83]

It will be very surpising if much comes from the Linstead report. The purpose of the Study Group was to conduct 'an enquiry into the problem of achieving breadth in the education at school and university of scientists, engineers and other technologists'. The authors admit that specialist subjects make excessive claims on the time and energies of undergraduates. [p. 22] They recognize the problems arising from the extension of the frontiers of knowledge, such as the lack of appreciation of the work of one specialist by another. The graduate scientist or technologist, they

---

1. See page 194 for the opposite point of view expressed by Dr. P.F.R. Venables.

acknowledge, too often displays a narrowness of view and interests, is unable to relate his own work to that of his colleagues or theirs to his, or is not as effective as he should be as a member or as a leader of a team because of his inability to communicate effectively with others or to enter sufficiently well into their thoughts and failings. [pp. 1, 2] "The need to provide adequately for non-scientific subjects in the education of aspiring scientists and technologists has ..... been argued and accepted. The views of the headmasters and headmistresses consulted entirely support this conclusion. Some argued the case on general grounds: that 'science and arts are both parts of a full life', that study of non-scientific subjects by these specialists was 'good discipline'; that it helped in the development of a balanced personality; or that 'the nature of proof differs to some extent between one field and another'. Others argued it on specific grounds, for example, that art helps to develop 'imagination, observation and accuracy'; or that foreign languages are useful in the development of 'general culture'; that history and literature, if 'properly presented', improve powers of expression and powers of judgement."

"This is a powerful array of reasons for providing adequately for non-scientific subjects. Indeed, these witnesses were unanimous in attaching importance -- 'high' or 'great' importance, as most of them put it -- to this provision and almost unanimous in admitting the inadequacy of the allocation of time they were able to make to these subjects, though they fully accepted the principle of specialization in the sixth form." [pp. 21, 22]

In spite of these arguments, the Study Group concludes that "for the average undergraduate, when more stable conditions are reached, policy could with assurance be directed primarily towards the provision of leisure, and of adequate opportunities for its right use, rather than towards intra-curricular provision for non-scientific subjects."

This conclusion implies that, once the period of stringencies is over, university policy could, as it were, become the counterpart of school policy. At

school, it is within the scope of formal education that the main effort must be made in laying the foundation of a broad education and it is the schoolmaster and mistress who must make the running; at the university, it is the student who must make the running, primarily in his leisure hours, If this is the classic conception of the function of school and university, it is none the worse for that." [p. 77]

It is necessary to repeat the comment of Peterson [1960, p. 12] that "it is ..... a feature of recent discussion of general education in England that the Universities have tended to relegate it to the Schools, while the Schools, or at least the most influential among the Headmasters, have tended to postpone it to the Universities."

The problem of finding time for general education, and whether time should be found in school or in universities is discussed in chapter 8. It is hard to escape the conclusion that the 'no time' argument is used by persons who would show little enthusiasm for formal general education even if time were much less of a problem than it is.

4.44. The University of Sussex and the University of York.

Many new universities are being planned in England. The University of York will receive its first students in October, 1963. "Many of the normal arts subjects, the natural sciences and the social sciences will be studied, but in order to avoid intense specialisation there will be no rigid division into faculties, and students will be able to broaden their fields of interest in two ways. First the student may study two related subjects, and secondly he will have the opportunity of following open courses on topics that interest him for their own sake or that illuminate his major subject of study." [York, England, 1963-64, p. 4]

The first students entered the University of Sussex in October, 1961; they were arts students only. Science students entered the University in October, 1962. It is interesting to note that within the Faculty of Arts and Social Studies, and within the Faculty of

Science, there will be no departments, but only schools, for example, Schools of European Studies, English Studies, Social Studies; and Afro-Asian Studies, but not Classical Studies -- well catered for in other universities - for there is a great shortage in England of facilities for Afro-Asian Studies. "Each of these schools will require, in proportions varying at the choice of the undergraduate, study in the three great divisions of the arts -- literary, historical and philosophical -- brought together in the unity of a single civilization. The whole academic staff of the university will be engaged in a single enterprise, reflecting the unity rather than the discreteness of knowledge." [Fulton, 1961, pp. 847, 848] This is not general education in the American sense, but it is an experiment in inter-disciplinary courses which are an essential feature of general education.

All students will take a preliminary examination in their first year at the conclusion of the second term, about the end of March. Three papers will be set, two common to all students and a third will depend on the student's choice of school. The details of the common subjects follow.

1. Introduction to history -- common to all students.

   Historical sources and materials and how the historian uses them; the nature of historical problems; why historians disagree; past, present and future. This subject will involve the study of particular cases. It will not be tied to a particular period, but will be designed to provide an understanding of the historian's craft and of a number of major historical themes which will be useful in all later work in the university.

2. Philosophy: The uses of language -- common to all students.

   The diverse but connected ways in which language is used for different purposes and in different contexts. The varieties of concept; the distinctions between laws, generalisations and theories, between description and evaluation, and between the expression of thought and the expression of feeling. This subject will serve not only to introduce students to whatever philosophical subjects they will take in their final examination -- and all students will study some philosophy -- but also to encourage critical awareness of the diversity of human thinking and the methods employed in different kinds of study. [Sussex, 1961-62a, pp. 10, 11]

The sciences will also be organized by schools. The first three years will lead to an honours degree based on a general science course. "If, beyond that a man wants to be a specialist chemist or physicist or biologist, he will stay on for a fourth year to take another honours degree at the end of it in a single science. This ..... is one way of lengthening the course for those who need it most." [Fulton, 1961, pp.853, 856]

During the years 1962 to 1964 there will be only one science school -- the School of Physical Sciences -- for the study of physics, chemistry and mathematics. Schools of Engineering Sciences and Biological Sciences will follow in 1964 and 1965. In the School of Physical Sciences, as in the Faculty of Arts and Social Studies, students will write three papers after two terms in their first year, and here also, two papers will be common to all students: mathematics and physics. The physics syllabus is interesting for what it includes and for what it excludes:

> The atomic structure of matter and interatomic forces. Interpretation of the mechanical and thermal properties of matter in terms of the atomic picture. Elementary kinetic theory and the Boltzman distribution. The first law of thermodynamics and its applications.
>
> Electrostatic phenomena and the nature of dielectrics. Elementary classical electron theory of conduction. Magnetic effects of a current. Forces on moving charges in magnetic and electric fields. Origin of the magnetic properties of matter. Electromagnetic radiation and light quanta. Diffraction of light and particles.
>
> The Bohr atom and spectral lines. Qualitative aspects of nuclear structure and radioactivity.
>
> [Sussex, 1961-62b, p. 5]

"In the School of Physical Sciences every undergraduate will be required to make a preliminary study of the nature and properties of matter, with which all scientists are concerned in one way or another, in a way which emphasizes the atomic concept, and at the same time he will learn a little of atomic and nuclear structure. He will be further required to learn the basic mathematics necessary for the formulation and understanding of physics and chemistry. After this introductory course he will go on to study certain combinations of either two or three of the subjects physics, chemistry and mathematics and at the end of three years he will be awarded an appropriate honours degree.

It should be emphasized that this course is <u>not</u>

a conventional general degree course. Its essential difference is that the study of the various subjects is to be completely integrated so that the artificial barriers (not only those resulting from content, but also those created by language and viewpoint) are broken down. The main concern at this level will be to promote a full understanding of the fundamentals of the sciences being studied and to develop a sense of scientific intuition. The syllabus will be free from details of old-fashioned technology and experimentation or those peripheral topics which, although important in some restricted sense, do not help an undergraduate to acquire any deep insight into a subject. In addition, there will be lecture courses, seminars and discussion groups on scientific fields not being directly studied and, through the cooperation of the Arts Faculty, with the wider philosophical, social and historical aspects of science.

At the end of these three years the undergraduate should have a sound knowledge of more than one branch of science and mathematics and a broader outlook on science as a whole. He should be able to communicate more effectively not only with scientists in different fields but also, because of his association with members of the Arts Faculty, with the non-scientist. Graduates with such a background will be well-fitted, at this stage, to go out into the world as teachers in schools and administrators in commercial, industrial or public undertakings. However, it is expected that a large proportion, perhaps up to 50 per cent, will wish to stay at the university for the fourth-year course which has been planned to provide for the specialist study of one science or mathematics at an advanced level. This course will lead to a further honours degree in one subject only and will serve those who wish to engage in pure or applied research, become specialist teachers, enter the academic world and so forth. A great advantage accrues from this postponement of specialization until the fourth year, namely, that by that time an undergraduate should be very confident that he is making the right choice. He will have had experience of his chosen subject at some depth and his choice will be influenced by the right factors and not, for example, by the tradition of the school at which he received his education or any of those other chance and irrelevant factors which so often play a large part in determining the specialization to which an undergraduate commits himself.

It is expected that a similar approach will be adopted in the other Schools of Study. In particular in the biological field, it is hoped that the accent will be on genetics, cellular biology, biochemistry and biophysics, in which there are such exciting new developments and in which an introductory study of the nature of matter and mathematics will be of the greatest relevance and value. In fact, it can be strongly argued that for all scientists an understanding of the nature of matter, of the structure and interactions of its atoms and nuclei and of mathematics is an essential requirements and in the Science Faculty plays much the same role as the basic study of history, philosophy and language required in the Arts Faculty."

[Blin-Stoyle, 1962]

4.45. Oxford University.

Here follow some references to the 1960 issue of the Handbook to the University of Oxford. [Oxford, 1960]

"Generally speaking, the arts courses provided at Oxford have two striking characteristics. They are narrow and they are also broad. They are narrow in the sense that they cover usually one subject such as modern history, law, English literature, theology, and so on. It is not possible for a student to do so much history as a major subject and to offer French or law or psychology as a minor subject or subjects. This narrowness has certain obvious disadvantages. It is disappointing to a student who is versatile in his interests and capacities and who wants to gain a wide knowledge of various kinds of learning. On the other hand, within the limitation that the student may only study one subject, these subjects as set for the honour schools are defined as broadly as possible."

"The object of the arts courses at Oxford is to provide a broad humane education and a severe intellectual discipline rather than a body of immediately applicable information." Oxford "does not favour a variety of useful but not deeply developed studies nor an excessive specialization." [Ibid., pp. 145, 6] "The Oxford courses in mathematics and the sciences are outwardly more specialized than those in almost any other university, in so far as a student devotes a greater proportion of his time than elsewhere to the subject of his choice and less to other subjects. This specialization which is paralleled in literary subjects, proves less damaging in practice than it should be in theory. The student is encouraged by the breadth of the syllabus to take a broad and comprehensive view of the science he has chosen, and has the leisure to do so; the nature of the questions set in the Final Examination will indeed compel him to familiarize himself with wide tracts of knowledge in adjacent fields. A further and subtler antidote to narrowness of outlook is provided by the intimate contact with students of other faculties within the colleges." [Ibid., p. 164]

These quotations contain defensive references to possible charges of over-specialization. 'This

narrowness has certain obvious disadvantages'; Oxford 'does not favour ..... an excessive specialization'; 'this specialization ..... proves less damaging in practice than it should be in theory'; '..... antidote to narrowness .....'. It has been noted that specialization in English schools may commence for four-fifths of boys and girls who go on to University by the age of 13 or 14. At this age choices in curriculum (admittedly not absolutely final) are made as to whether they will specialize in the sixth form, for example, in science and mathematics, or in modern languages. [Crowther, pp. 210, 457]

Secondly, it should be noted that many of the objectives of Oxford courses are objectives of general education courses in America. At Oxford a broad humane education is aimed at, and each subject is treated widely with reference to related subjects. Academic and theoretical importance is placed before relation to practical problems. Subjects are not isolated in water-tight compartments. Many teachers are active members of more than one faculty. Specific lectures may be attended by students of very different fields. The 'tendency of the different subjects to rub shoulders with each other is enhanced by the college system'. [Oxford, 1960, p. 147]

The most celebrated course at Oxford is Literae Humaniores, or 'Greats'. "The effect of Literae Humaniores on its students is to develop accurate thought and speech and a keen and critical intellect. It is deficient in providing knowledge of the modern world, and modern history and economics will remain a closed book unless the student, as often indeed happens, makes himself well informed by his own efforts and intelligent general reading. But it is said to produce men who are unrivalled as expositors and judges of any situation or set of facts placed before them." It should be realised, of course, that "much of the deserved fame of Literae Humaniores at Oxford is due to the fact that for over a century a veritable élite from the best schools in England has prepared itself for classical scholarship and proceeded to Oxford after intensive competitive examination. The students and teachers in this Honour School of Literae Humaniores

have been, and probably still remain, the most naturally gifted and the most severely disciplined elements in the University," and, the author adds, "to a greater or less degree the rest of us are a little bit afraid of them." Admittedly, this is not a possible form of university education for the average undergraduate, nor could all but a very few universities in the world finance such a form of education. But if "it is probably true to say that no single definite curriculum of study in any one university in modern times has produced so many famous men in public life, in learning and letters" [Ibid., pp. 148 - 150] then evidently those who propose a study of history and philosophy, and of languages and literature, even at a lower level should formulate similar ideals.

The following description of 'Greats' comes from the inaugural address of P.H. Nowell-Smith as Chancellor of Leicester University. The study of history outlined in the third and fourth paragraphs below is certainly specialized, but it lends support to the American 'significant highlights' theory of curricula, which stresses the possibility of a good knowledge of methodology, without attempting to 'cover the ground'.

"The course takes four years and presupposes an initial competence in the Greek and Latin languages. The first part of the course is devoted to languages and literature.Here the student's rudimentary knowledge of the languages is improved by wide and superficial reading. He reads, for example, all Homer and Virgil and large portions of prose authors. This, in addition to making him so familiar with the languages that he is no longer hampered by sheer difficulties of translation, will already give him some background knowledge of ancient civilization. He will also have to study smaller portions of literature at considerable depth, and it is here that he is trained in accurate scholarship.

The second and longer part of the course is devoted to history and philosophy. The emphasis is now not on the literary aspects of Plato and Aristotle, Cicero and Tacitus, but on the history and philosophy of Greece and Rome. Not so long ago the historical and philosophical studies were more closely integrated than they are today, and the student might even receive instruction in both subjects from the same tutor. This is no longer possible; but what matters is that the philosophy tutor, though incapable of teaching history, will almost certainly have been himself trained in the Greats School and will know something of the cultural and historical background of the philosophy he teaches, and the history tutor once knew his Plato and Aristotle. That he may have forgotten them matters little; the skills he will have learnt

will remain. For intellectual skills, like swimming and riding bicycles, leave us only when decrepitude invades our minds and bodies.

It is of the study of history in the Greats School that I most wish to speak; for it is here that we can see how unnecessary it is to try to cover the ground. In the Greats School the student has to select two periods, one of Greek and one of Roman history, and most of these periods are less than two hundred years in length. Those who designed this scheme considered it no objection that the student might remain wholly ignorant of the first six hundred years of the Roman Republic and of the history of the Roman Empire from the death of Nero. If his curiosity does not get the better of him out of school hours he may leave without ever having heard of Scipio or Trajan. Yet he will, I maintain, be far better equpped to become an historian, if that should be his choice -- he will certainly be far better equipped with those skills that historical studies can teach -- than he would be if he devoted the same time to a bird's-eye survey of Roman history from Romulus to Romulus Augustulus, a period of some twelve hundred years, shorter at that and less well documented than that which divides Caesar from Churchill.

This contention, though our modern historians may find it revolutionary, will appear obvious if we return to the purpose of teaching history. Some of our arts students will no doubt be teachers of history themselves and they may be called upon to teach a number of periods at once as soon as they arrive at their schools. If they have not, in their student days, covered the ground, they will have a hard task before them; a hard task, but not an impossible one; for they will have been equipped with the intellectual skills which go to make up "being an historian." If they have simply covered the ground they will not. Even the future teachers of history are in less need of information -- which, after all, they can always find in books -- than of these professional skills. It is the skills therefore that our history courses must be designed to teach." [Nowell-Smith, 1961, p. 83, 84]

4.5. COLLEGES OF ADVANCED TECHNOLOGY.

Breadth for the humanist is hardly to be found in England except at Keele and Brighton. It is not only at school, however, that better provision is made for science students. Science and engineering and management students at the colleges of advanced technology follow a systematic program of general studies, much more thorough-going than those described in the Linstead report.

4.51. Birmingham College of Advanced Technology.

The college provides a diploma of honours degree standard. It operates on the 'sandwich' basis. (The

term in America is 'cooperative'). There are 3 terms a year of 12 weeks each, and students attend for 2 of them. The remainder of their time is spent in employment.

The Principal of the Birmingham College of Advanced Technology, Dr. P.F.R. Venables,[1] is a strong protagonist of general studies. [Venables, 1955, pp. 518 - 522, and 1959a, pp. 43 - 51] He was the Vice-Chairman of the Committee which produced the report Liberal education in a technical age, [Wood, 1955] and his description of developments since its publication (contained in an unpublished memorandum) is referred to in this section. Dr. Venables paid a visit to South Africa in 1960.

After experimenting since 1954 a new program of general studies was instituted at his College at the beginning of 1962/63. This is designed to supplement and enrich scientific and professional training by directing the student's mind, senses and emotions directly to problems of economics, sociology, psychology, the arts and humanities. General studies are not aimed at any specialist qualification, and are taken by all students, regardless of their particular professional interest or vocation. Three hours are provided for general studies in the first and second years, and two in the third and fourth years. During these two years, one hour is devoted to studies which contribute directly to a student's professional competence, such as industrial administration, report writing, and foreign languages.

The program over the four years will cover three broad areas of study:

A. The relation between science and technology and social life:
   (i) Philosophy and science.
   (ii) Economic and social structure of an industrial society.
   (iii) Biology and society -- health and conquest of disease.

B. The social problems of an industrial civilisation:
   (i) Law and liberty.
   (ii) Sociology and social philosophy.
   (iii) General and social psychology.

C. Aesthetic and humanistic studies:
   (i) Comparative and ethical systems.
   (ii) Literature.
   (iii) The fine arts and architecture.

---

1. Now Sir Peter Venables.

General studies are a College activity. If full benefit is to be derived from these studies, it is desirable that as many students as possible from different departments should meet each other at the same time for general studies. Accordingly, students from different departments will come together on the same afternoon each week.

During the first year, on alternate weeks, all the students will attend together a series of nine lectures on the subjects mentioned above, and afterwards have opportunity to put questions to the lecturer, and for discussion on his subject. In the weeks alternating with these lectures, the students will be divided into groups for tutorials, and periods of private study. These groups will be of not more than nine, composed of students from all departments. Every student is enabled thereby to meet his fellows who are studying other technologies. This mixing of students is in contrast with their organisation for scientific and technical studies, when perforce they are formed into groups within their own departments, each group following a particular timetable.

The tutors for general studies will be drawn from the staffs of as many departments as possible, so that the groups of students will meet staff from departments other than their own.

It is anticipated as the session proceeds, that tutors will interchange between various groups, and thus extend the area of student-staff contact. The advantage of these meetings to both parties is obvious.

A further difference for the student from his technical studies is that no formal written examinations will be held in this program. Towards the end of the year, a lecture-discussion will be held on each of the lecture subjects, as the student will be asked to choose two of these subjects for intensive study. During the second and third years, students will follow their chosen courses of study, and they will be expected under tutorial guidance, to write essays of a high standard. Some of the time allocated to general studies during the two years will be spent in reading and investigation for the essays. The essays will be assessed and the student will be required to take an

oral examination, attended by his tutor and the head of the student's department. During these two years, the student will receive special guidance in the use of the English language. In the fourth year, the students will be brought together in groups of about thirty for a series of lectures in which contemporary problems of the individual in society will be discussed. During the second hour of the two hour period, the group will break up into syndicates to discuss and prepare reports on the problem. With careful choosing of the groups, the benefits of specialisation in the second and third years can be gathered by the whole group. The 'English usage' requirement for the College Associateship will be fulfilled by a pass in an essay, thesis, or other appropriate means submitted to and accepted by the general studies internal examiners. [Birmingham, 1962 - 63]

Before 1962, the course in 'Economics and human relations' included the following: communication, economic and industrial organization I and II, product design and development I and II, industrial relations, industrial law, and human relations. The first two are studied in the third year, and two each year thereafter, for 24 weeks with 1½ hours per week. (Two run for 48 weeks). These subjects may appear to be no more than the 'tool subjects' of an industrial administration department, but they are in fact much more in the hands of good teachers. "Nevertheless, despite the broad treatment which good teachers have felt compelled to introduce into this scheme of general studies, they remain dressed up vocational subjects and the basic arguments for change remain undiminished."

Opponents of change argue that the members of the staff of an industrial administration department have close links with industry, and can more readily persuade students that time spent on general education is not wasted. To base general/liberal studies on industrial administration subjects ensures that the teacher will be in tune with the interests of his students. The student can be shown that his professional interests are relevant to wider social, political, and aesthetic questions. Furthermore, with pressure on time, this provides a compromise. Indeed passes in these

examinations lead to exemption from certain subjects in the College Diploma of Industrial Administration.

But, says Venables, these arguments, at first sight extremely plausible, rest on shaky foundations. General/liberal studies must expose the student's mind and senses to experience which the study and practice of a profession do not normally provide. The student must see this to be relevant; he must realise that this is what relevant means. If students regard liberal studies as airy-fairy and wasteful of precious time, if the student's past experience has produced a set of values and expectations which dispose him to reject new ideas and experiences as irrelevant, this is all the more, not all the less, reason why liberal studies should not consist of 'dressed-up' vocational subjects. "It is surely wrong to escape the challenge by giving extra professional training with a label 'liberal studies' affixed."

"The notion cannot be taken seriously that 'practical' people teaching subjects with a 'practical' bias are the only people who can teach other 'practical' people anything worthwhile. It is arrogant to hold that the artist, the historian, the philosopher and the poet, have nothing to teach the engineer or the scientist, or is a less useful member of society because his concerns have less immediate practical relevance. The reverse form of arrogance is equally to be deplored. The whole idea of general/liberal studies is to close the gap between the 'two cultures'. If we are to ask the arts man to come to terms with the engineer, we should expect the engineer to meet him half-way. A liberal studies programme, properly so-called, would help to set this process in motion."

The point of view which equates a body of knowledge with a time-table is rejected by Venables in replying to the 'pressure of time' argument. Essentially, education must decide what kind of man it is trying to produce. "We should seek to produce men and women who, while professionally competent, have developed the bases for the appreciation of art, literature and the theatre, and who are acquainted with disciplines of thought different from those which they learn in the study of their technology or science."

4.52. Brunel College of Advanced Technology.

The Principal, Dr. James Topping, paid a visit to South Africa in 1961. Here follows a brief summary of views expressed by him and of the practice observed at his College. [Topping, 1961, p. 100] In 1956, when Diploma in Technology courses were first introduced, English, social studies and fundamentals of science were added to the curriculum. "We now see more clearly that adding subjects to the curriculum as 'liberalizers' is not enough, and further that there is a real danger in asking specialists on the staff to teach the liberal studies, for it may encourage teachers of other subjects to feel that they themselves have no responsibility for contributing to the 'liberalizing' process through their own teaching. The notion that all teachers have a measure of responsibility for providing a liberal education is an obvious one, but the process of accepting it can be illuminating. We now call the additional subjects, general studies; they are essential additions to the curriculum, by themselves not necessarily 'liberalizing' but designed to help us to provide a broader education."

"Two of the additions we have chosen are called English and 'social relations' (they might have been named 'Fundamentals of language' and 'Fundamentals of society'). The ideas behind them are simple. First, we have considered it important, and found it necessary, to help the students live in a world of people as well as things; we have, therefore, thought it essential that they should have some introduction to the study of people and society and to the social sciences. The third addition, 'Fundamentals of science' ..... is an attempt to deal with some of the aspects of science, including its history, method and philosopny which often do not find a place in lecture courses."

"We would readily admit that there are plenty of other desirable additions, if time were not so limited. But it happens with general studies, as well as with main subjects, that there is a great danger of over-loading students by overcrowding the syllabuses and of inviting failure by attempting too much. We have constantly to remember that breadth in education is not provided by mere extent of subject matter. The creation

of new knowledge in science and technology is rapid and extensive. So our principal challenge is to try and provide a good education through a deep enough study over a limited range, assured that if we have done our job properly students will be able to tackle new fields of study later with confidence and success. If they cannot tackle new work unaided they have not been educated; they have merely been taught. This is equally true of the content of 'liberal studies'. What might be called the 'encyclopaedic' approach -- and some syllabuses are so extensive that they merit this adjective -- is appalling. General studies are not likely to achieve 'liberality' through the provision of more and more courses in other subjects, good as each may be."

"The courses in the first phase are conducted as discussions with small groups of eight to twelve students. Although some students talk easily, others do not and can remain 'outsiders' for many meetings of the class. Both training and practice in discussion are needed."

"In the second phase, extending over the third and fourth years, the courses in general studies are more formal and are conducted as lecture-discussions in bigger groups. Also they are planned so that several, from which the student is able to choose, are going on at the same time; we attach some importance to this opportunity for choice on the part of the student and to the consequent mixing of students from different diploma in technology courses. Our experience is limited but we expect the courses in the second phase to grow naturally out of the first; from the courses in fundamentals of science we shall develop courses in the history of science, in scientific method and in philosophy. From the English course there will follow courses in literature and the arts, including music and painting, and with some attention to foreign languages which, so far, we have almost entirely neglected. The first-phase discussions on social relations will stimulate interest in the social sciences and psychology."

"As to examinations, the case for examinations in liberal studies is, it seems to me, as soundly based as that for examinations in other subjects, and indeed it is important that liberal studies should not lose status

in the eyes of the student 'because we do not examine in them'. It may be, however, that the appropriate modes of examination are not those we usually make use of with other subjects. In English, we have followed a pattern whereby in their second term in the college students choose a theme and write a paper on it. This is orally examined by the English lecturer and a member of the staff of the student's own department, who interview the student together. This method of examination has been used successfully for some years now; it might well be extended, as in continental countries, to technological subjects. As a nation we have not explored to the full the possibilities of oral examination." [Topping, 1961, p. 100]

4.53. Northampton College of Advanced Technology.

Liberal studies are organized by the Northampton College of Technology in London by Mr. A.C. Leyton. Here follows a summary of conversations held with him and reports written by him. The objectives for students of liberal studies, as he sees them, are to develop alert minds, exercised in observation and reasoning, sensible of the social world around them; able and confident in speaking and writing; sensitive to the world of human relations; well prepared for responsibility in their industrial lives. He stresses, however, the limitations of time: 2 hours a week for 24 months.

In formal class hours subjects are studied which are directly related to the students' immediate lives as workers and citizens, and which, except for one, will probably not have been offered for the G.C.E. "O" level: economics, social institutions and administration, social and political philosophy, social psychology, literature and English language, communication, industrial relations, history of science and technology, logic and scientific method. Subjects are suitably selected. In the first year, students attend plenary sessions, made up of three or four classes together, for one out of two of their weekly periods: the lecturer outlines his subject in three or four lectures. In the other weekly period classes meet separately, each with a lecturer acting as academic tutor, who leads

discussion on the lectures of the plenary sessions. In the second year, students choose a subject which they study as a major subject for three years. In addition, in the second and third years, but not in the fourth year, they take a subsidiary subject. End of term assessments will be given in the major subject, and course marks for minor subjects. Three months before the end of each sandwich session students are given an essay topic. Essays of 2,000 to 3,000 words are expected, and 4,000 in the fourth year.

In free, voluntary time, particularly during the two long lunch breaks, liberal studies include the general arts, and these are coordinated with the activities of student societies. Music has been an especially popular interest. Voluntary lectures arranged once a week may be attended by 400 to 500 students, depending on the distinction of the speaker.

It will be remembered that these students alternate between periods of study in the college, and periods of work in industry. Liberal studies are therefore obviously designed to provide an adjustment to human, social and economic challenges of industrial life, with emphasis on the need to work cooperatively with others and to develop at least the potential ability to direct and coordinate the activity of others.

4.54. Welsh College of Advanced Technology.

4 hours per week are provided in the first year, and 3 in the other three years of the sandwich course. For full-time courses the figures are 3 and 2. The courses provided are:

Year I	Introduction to communication in industry. History of scientific ideas.
Year II	Communication studies -- written and oral. Philosophy of science.
Year III and IV	Current problems at home and abroad. Economic history. Science and the humanities.

4.55. The Royal College of Advanced Technology, Salford.

For full-time students of the College, a course of liberal studies is provided comprising four main parts.

(a) Communication.

Under this heading are included courses of

post-G.C.E. standard in the use of the English language, aiming at the critical appreciation of literature and literary style, the development of facility of expression both written and oral, an understanding of logic, and the presentation of reports and articles, both technological and non-technological. Finally, this part of the liberal studies course considers the wider aspects of communication in modern industrial society - the techniques and significance of communication within industry, and in public relations; advertising and mass media of communication; public opinion, public information and propaganda.

(b) Man in society.

This part of the course has a broadly sociological content where the aim is to present a series of human problems to the student in order that he may:

(i) increase his interest in and awareness of human institutions, political, economic and social questions and world affairs;

(ii) develop a scientific approach to the understanding of human problems;

(iii) appreciate the contribution of the humanities and social sciences to the understanding of the contemporary world.

(c) Optional studies.

In each session of his course the student will pursue a study of his own choice from such subjects as art appreciation, architecture, archaeology, astronomy, appreciation of music, history and philosophy of science, moral philosophy, ethics, law, music and sound reproduction, literature, biology, the science of race, psychology, human geography, drama, public speaking, geology, comparative religion, language studies in French, German and Russian.

(d) Industrial sociology.

In the fourth year the studies grouped under 'Man in society' in the first and second years are succeeded by a more specialized and concentrated approach to the study of industrial society. Some topics to be studied in this field are: the ideologies and social problems of industry; the nature and implications of industrial growth; industry, the individual and the group; and the interaction of industry and politics.

Dissertation.

The liberal studies department further provides as a major aspect of the courses for Diploma in Technology, tutorial supervision for the writing of a dissertation in the third year of the student's course. This dissertation represents the result of a piece of intensive study on the student's part and may be on any topic of his own choice, subject to the approval of the department.

4.56. Other technical colleges in Britain.

The colleges of advanced technology in Britain form the apex of the structure of technical education. There were ten in 1959. Regional colleges numbered over 20, area colleges 160, and local colleges 300.[1] The levels vary from work of undergraduate and post-graduate standard (full-time or 'sandwich') to school standard (much of it part-time). Liberal education in a technical age, [Wood, 1955], deals largely with general education for more junior students. So too does General studies in technical colleges. [HMSO, 1962] The important circular Liberal education in technical colleges has been referred to before. (See page 20) This information is given for the sake of completeness, and because many boys and girls, of an age for full-time education in America, are in part-time education in Britain. It is not proposed in these pages to deal with general education for part-time students.

4.6. CANADA.

4.61. McGill University.

The honours degree "is governed fundamentally by the belief that a relatively intense study of one field, not too narrowly limited, is the best medium of general education. A student who has gone sufficiently far in the study of one subject to have become aware of the assumptions on which that study rests and of the difficulties which its methods have been shaped to meet, and who has been introduced to the kind of material with which more advanced work in the subject is concerned, has probably undergone a better general mental discipline than the student who has sampled a variety of useful, but not very deeply developed, studies. While the honours curriculum, therefore, may be thought to be 'narrow', in the sense that the student is directed, in the latter years of his course, to the study of one or two subjects only, it is 'broad' in the sense that its purpose is to provide a more acute and discriminating, because more unified and systematic, intellectual training than is possible under the condition of the general degree.

Since the aim of the honours curriculum is to

1. For a concise description see British technical education by Venables [1959b].

develop critical and analytical ability, as distinct from, and in addition to, the imparting of information, it requires the student to exercise his own initiative and to develop the capacity to do much of the work for himself under guidance and direction. Part of the work (the situation varies as between departments) dispenses with formal lectures and proceeds by group, or individual, tutorials, so that the student reading for the honours degree enjoys close and continuous supervision of his work by individual tutors." This is an extract from the announcements of the Faculty of Arts and Science of McGill University. [1962-63, p. 1029]

For all that, the curriculum for the general degree of Bachelor of Arts has been revised as from October, 1962 to include the 'Faculty course, part I' as one of five subjects in the third year, and the 'Faculty course, part II' as one of the five subjects in the fourth year, making two out of twenty courses in the four years. [McGill, 1962-63a, pp. 1029, 1023/4]

The following are the main outlines of the content of the 75 lectures, given over the two years, usually each by a different professor, although some professors give two or three.

Lecture numbers -

1	Introductory.
2 - 4	The first civilizations.
5 - 11	The Greeks.
12 - 20	The later classical world.
21 - 24	The earlier Middle Ages.
25 - 31	The Middle Ages -- the East.
32 - 43	The High Middle Ages -- the West.
44 - 60	The Renaissance of the 15th and 16th centuries.
61 - 65	The Reformation.
66 - 75	The 17th century.

The course covers primarily the three main aspects of the humanities -- history, literature and philosophy, but it deals also with economics, the fine arts, architecture, science, and mathematics.

Subject of lectures	Lecture number
Science and mathematics	11, 53, 54, 55, 74, 75.
Fine art and architecture	10, 35, 36, 46, 47, 48, 55, 72.
Economic theory	34, 73.

Candidates for the general degree of B.A. do not <u>have</u> to take any course in science, but they may take biology, chemistry and physics in the first year,

and a science subject in the second, and another in the third. (Mathematics, psychology and geography may be treated under specified conditions as arts or as science subjects). [Ibid., pp. 1022]

Candidates for the general degree of B.Sc. do not have a course comparable with the 'Faculty course'. In the first year, English, mathematics, physics, and chemistry are compulsory courses, and the fifth is an elective from a wide field. In the second, third and fourth years, one arts subject must be taken, and a second may be taken. (Mathematics is not here listed as an arts subject: psychology and geography appear in both the science and the arts lists). [Ibid., pp. 1025 - 8]

Advice to students who intend to proceed to dentistry, divinity and law refers only to related subjects. Pre-medicals are advised, inter alia, to choose non-required courses so as to provide more than elementary training in some definite field of knowledge, which may be selected from the humanities, the social sciences, or the physical or biological sciences. [Ibid., pp. 1033, 4]

Engineering courses take five years, and architecture six. First year students must take English and one other course in a discipline outside of engineering. This course must be continued into the second year. The Faculty would like students to have as free a choice as possible here, but the exigencies of time-tables and sizes of classes limit selection largely to languages, biology, economics, geography, history, history of architecture, and music. Electrical engineering students in the third year are required to register for a course in the humanities; other third year students are encouraged to do so. [McGill, 1962 - 63b, pp. 1945 - 7]

The B. Com. curriculum is built upon a "foundation in the basic humanities" including English, another language, and mathematics, in the first year; one of geography, political science, psychology, and sociology, and also one course to be continued into the third year and into the fourth year from a list of various languages, or history, or philosophy: two more additional courses in both the third year and fourth

year from these languages, history, philosophy, geography, psychology, sociology and anthropology, science in economic life, or certain subjects related to normal B. Com. courses. [McGill, 1962 - 63c, pp. 1306 - 1315]

4.62. Toronto University.

The general course (3 years) leading to the degree of Bachelor of Arts includes six subjects in the first year, one from each of the following groups: languages, sciences, humanities, social sciences. 'Concentration' occurs in the second and third years, but the 'distribution' requirement is that the five courses per year must be chosen from at least three of the above group. In each of the three years of the general course in science 4 hours per week out of about 24 are devoted to language(s) and/or a limited range of humanities and social sciences. The degree of Bachelor of Commerce follows four years study of honours courses in commerce and finance. [Toronto, 1962 - 63, pp. 48, 49, 59 - 61, 116 - 118] A prominent member of the Faculty of Applied Science and Engineering boasted[pc] that 6% of 'genuine humanities and social sciences' was provided. An equally prominent colleague in another faculty said[pc] that the engineers took English to enable them to write reports, economics to help them in business, psychology to learn how to manage people, and political science to understand government regulations! Professor Rund (University of South Africa) had taught at the University of Toronto, and said[pc] that general education had little prestige among staff or students.

The general courses described above have been dealt with summarily because of the impression gained in private conversations with Dr. C.T. Bissell and Dr. M. St.A. Woodside that the University as a whole was considerably more interested in the honours courses than the general courses. Certainly the honours courses enjoy very considerable prestige. They go back to 1880, and are deeply rooted in the Oxford tradition. At Toronto and at McGill one, or perhaps two, subjects are studied, and any others thought necessary are decided upon in consultation with the departmental heads. Dr. Bissell in his annual presidential report

for 1958/59 [p. 4] says: "The strongest guarantee of the continued existence of the intellectual community here is the preservation of the honour course system and increasing emphasis upon graduate work. Ten years ago there was an attempt made to reorganize and strengthen the non-honours work in the Faculty of Arts, and to give it thereby a new dignity. Admittedly the General Course, which emerged from this investigation, was a great improvement over the old Pass Course. But none the less the honours work has continued to attract, in almost every year, the major[1] portion of students in the Faculty of Arts. Indeed, it may be asked whether Toronto, by virtue of tradition and academic structure, is not specially equipped to give honours work, and whether we should think of restricting the number of students admitted to the General Course. Already the need for a greater degree of concentration in the sciences has brought into being the General Course in Science, and it is possible that the committee which is to be appointed to examine the General Course in its entirety will recommend similar concentration in other areas. In making this suggestion about this university, I am not decrying the importance of general education. It may be, however, that general education in the sense of an education that attempts to give the student an introduction to all of the major areas of learning can be more effectively given in other institutions."

4.63. York University.

The legislature of the Province of Ontario created York University in March, 1959, and it was to be affiliated to the University of Toronto for four to eight years. The 1962 - 63 calendar shows that it is still tied to Toronto's general degree, but Professor John R. Seeley said[pc] that he expected it to diverge considerably in time, and that it might well follow a pattern closer to that of the United States than that of the University of Toronto. The calendar for 1960 - 61 includes this statement:

> "Dr. Murray G. Ross[2], appointed President by the Board of Governors in December, 1959, suggested the new University's focus in a question: 'I wonder

1. Average 51.5%, 1950 to 1958.
2. Dr. Murray Ross was Vice-President of Toronto University from 1957 to 1960.

> if the prime obligation of a university is to train narrowly specialized people'? York University's answer, echoing that of John Stuart Mill, is no. 'Men are men before they are lawyers, or physicians, [or merchants], or manufacturers, and if you make them capable and sensible men, they will make themselves capable and sensible lawyers, or physicians'. [Mill, 1867, p. 21]. The concern of the University will be to give a solid general education in the arts and basic sciences before professional training.
>
> In years when after-dinner prophets remind us of the urgent need for scientists, engineers, technicians, and managers, it may seem foolishly nostalgic to argue for well-educated men. But it is not nostalgic. It is only to recognize that those who lead and shape the community may either be enlightened, wise and tolerant, or they may be narrow and cramped in vision, only dimly aware of the world in which they act. Most of them see the need to know the world, and if they have not begun their education at a university, they are forced to educate themselves later in life, if they have time. York University hopes to lay the irreplaceable foundations of knowledge in the minds of its students in the years when they are most eager to learn.
>
> 'Liberal education' is an ideal, and ideals of course are seldom fulfilled in the world. The phrase is also used loosely, perhaps carelessly, without thought to its precise definition. If we may be permitted the boldness to add our definition, you may be clearer about the aims of this new University. Liberal education is meant to make men's minds free, and there are certain inescapable steps to this liberation. To prepare our minds for original speculation, for independent action, for artistic creation, we must absorb some of the collective wisdom of mankind. We must know to what limits knowledge of the world has moved before we can step beyond them; we must know what other human minds have done, before we can measure our own abilities; we must be ready to take the accumulated advice of other men about our methods of observation and speculation, before we can stop stumbling in the dark. We must acquire the disciplines of the mind before minds can range freely."

It is significant that another recently formed faculty -- the Faculty of Engineering at McMaster University -- should find it possible to devote about one-sixth of its time to humanistic and social studies. [McMaster, 1962-63, p. 76] The first engineering degrees were conferred in May, 1961.

4.64. Sir George Williams University.

In this university, there are four academic divisions: natural sciences, humanities, social sciences,

commerce. "Believing that educated people should come into intimate contact with all of these areas of life, it is provided that the academic experience of every student shall include work in each of these major fields. One attempt to accomplish this is the provision of the three exploratory or survey courses in these three fields. The emphasis placed upon the study of contemporary English literature and of modern writings in the fields of science, social science, and the arts is another indication of this point of view. A fourth division of the University curriculum (Commerce), while distinctly practical and vocational in emphasis, is related in teaching and course content to the basic philosophy of the University, since that philosophy is based on the belief that there is no genuine conflict between the learning skills and the development of persons, that if sound personal attitudes are to be developed they may be as readily developed in so-called 'vocational' courses as in those that are more traditionally academic in nature. Students following the Commerce Curriculum may take a large part of their work in the other three major fields." [Williams, Sir George, 1960-61, p. 30]

This university provides three general courses: natural sciences 210, humanities 210, and social sciences 210, the content of which is briefly described below. [Ibid., pp. 104, 126, 146]

General course in the natural sciences, 210.

> A pandemic course providing an introduction to the basic sciences necessary for an intelligent appreciation of the world of our day. Science is presented as a unity. The subject matter dealt with is: (a) the earth in space, the universe; the earth's crust, soil, minerals, rocks, strata, fossils; the nature of matter, radiation, etc. (b) animals and plants, their functions and relations; the human body; heredity and environment; evolution. (Full course)

General course in the humanities, 210.

> It is the purpose of this course to enlarge and enrich the student's comprehension of his cultural heritage by the study of Man as a unique creative being. The sources for this study of man are drawn primarily from the fields of history, philosophy, religion, literature and the arts with a view toward examining those experiences and ideas of enduring power which have shaped the nature of the modern man from the age of Greece to the present century. (Full course)

General course in the social sciences, (210).

The pandemic course has the same point of view and objectives with regard to the social sciences as natural science 210 has regarding the physical sciences. It has a twofold purpose: first, to introduce the student to some of the basic concepts and subject matter of the various social sciences; second, to provide him with some knowledge of contemporary society and the problems which confront it. The social sciences surveyed are anthropology, sociology, human geography, history, economics, and political science. (Full course).

These courses were at one time compulsory for all students aiming to obtain the B.A., B.Sc., or B. Com. degrees, but this is not the case now. A number of freshmen still take these three courses as a method of determining what they are interested in, and to discover what the specific sections have to offer. However the student who has determined what he wishes to study is permitted to follow the normal pattern of distribution and 'majoring'.

It is interesting to note that the University provides two-year courses leading to a Diploma of Associateship in Arts, Science or Commerce or a Certificate in Engineering. This practice is similar to that of Junior Colleges in the United States.

4.65. French-Canadian Universities.

The French-Canadian universities are unique in the British Commonwealth in being patterned after the French system, rather than after those of the United States or Great Britain. Basic to the structure are some scores of eight-year collèges classiques, in which the first four years are at a secondary school level and the last four years (following an 'immatriculation' examination) are at the college level and constitute the faculty of arts in Laval or the University of Montreal. The colleges are largely residential and are scattered throughout the province of Quebec, with at least one in every Roman Catholic diocese. The curriculum involves not merely French and English but Latin, Greek, mathematics and science and two concentrated years of Thomistic philosophy. The student attains his B.A. at the same age as in the Anglo-Canadian universities, but as he has no academic specialization in any subject beyond about the sophomore year standard

in the latter (except in philosophy), he finds a transfer to the other system very awkward. He is accepted without question, however, into the faculties of the University of Paris. There is no attempt at a Procrustean bed of curriculum and text-books in the scores of collèges classiques. The examinations are set by the university; and in languages, for example, the papers consist entirely of prose composition and unseen translation. The B.A. degree is a prerequisite for most of the professional faculties of the University. In the faculty of letters at Laval, for example, a student so entering will take a further three years for a licence ès lettres (either a teacher's diploma or a general culture diploma), and five or six further years, plus a published and publicly defended two-volume thesis, may earn him a doctorat ès lettres. A student may by-pass the collèges classiques and enter the science faculties direct from grade XI of the provincial secondary schools, but the record of those so matriculating is markedly inferior to that of those entering for the B.A. There are separate French classical colleges for men and women, but the rest of the university system is largely co-educational.

In most of the faculties other than arts (theology, law, medicine, philosophy, science, dentistry, pharmacy, music, and many others), the usual degrees are the baccalaureate in the special field, the licence and the doctorate. As a concession to Anglo-Canadian practice, a master's degree is also sometimes offered. The Ph.D. always involves a research thesis in addition to course work. [Commonwealth Universities, 1961, pp. 106, 107] Professor Arthur Tremblay of Laval University, and adviser to the Minister (in 1960) on new educational policies said[pc] that in French-Canadian universities choices were offered between courses, not between subjects, as in the United States. There were two streams in the classical colleges, he explained: the Greek/Latin stream, and the mathematics/science and Latin stream. Only 10% followed the second stream, but the numbers were increasing. The curriculum is a form of 'specialist general education'. The eight years of the classical colleges formed one true whole, under school discipline, but classes might meet in separate

buildings for the last two years. The colleges are essentially residential. They lead to a B.A. degree conferred by Laval, Montreal or Sherbrooke Universities. In 1957-58 there were 50 classical colleges for boys and 20 for girls. All professional courses except engineering were preceeded by this course.

The curricula of French-Canadian universities is largely determined by their relationship to the Roman Catholic Church. There are many such in Ontario, Quebec and the maritime provinces. They make an important contribution to Canadian higher education, but they are dealt with briefly in these pages, the concern of which is with secular universities.

There are 15 independent degree-granting universities and colleges in the Atlantic provinces with a population less than 2 million. Ontario and Quebec with a population of 10 million have 14 universities and colleges. By law, there is one only in each of the four western provinces of Manitoba, Saskatchewan, Alberta and British Columbia, (population 4 to 5 million), and they are well subsidized by their provinces.

4.66. The University of British Columbia.

A student may proceed to the B.A. degree either in a general course or in an honours course. The requirements for a general course B.A. enable a student to obtain a broad general education in several fields without specialization in any one of them. The course of study for an honours degree, on the other hand, requires that a student study one or two subjects intensively during the last two or three years of his course. English and another language must be taken in the first and second years. At least one laboratory science course, and at least one humanities or social science course must be taken in either the first or second year.

In courses leading to the degree of B.Sc., English and another language must be taken in the first year. One non-science elective must be taken in the second year.

In engineering, essays are required usually in the form of a scientific report based upon original observations made during the summer vacation. An

elective (a humanities or social science subject) representing about 5% of one year's work, is allowed in the second year for some, but not all, engineering courses. [British Columbia, 1963-64, pp. 96, 97, 100, 208-220] English 250 (reading and composition) of some second years, and English 350 (studies in literature) of some third years. 150 consists of essays, class exercises, selected reading and written examinations. In 250, half-a-dozen outstanding novels are read, and the ideas encountered are discussed in essays. 350 covers selected readings in great writers of the past and present. [Ibid., pp. 232] 2 hours of lecture time per week is given to these courses out of a total of 17 or 18 (excluding 'laboratory'--about 10 -- and 'problem'-- about 8).

4.67. Canada and general education.[1]

Professor Watson Thomson is an Associate Professor in the Department of English of the University of British Columbia. He is a graduate of Glasgow University. He made a study of programs of humanistic-social courses in engineering schools in the United States and Canada in May and June, 1957, and of the humanities in British training of technologists in the summer of 1959. His findings are contained in two unpublished memoranda.

He acknowledges that the general education of specialists has made relatively little headway in Canada. Yet surely, he says, the dangers of excessive specialization and fragmentation are as great in Canada as anywhere else. "The level of general knowledge and culture in the products of our high schools satisfies nobody as adequate for a university undergraduate, still less a university graduate. (This is not to point a finger of scorn at the public schools; it is, at least in part, the result of the necessary 'melting-pot' function which they perform admirably). And surely one cannot rely on the home or the community to enrich adequately the cultural background of many, if not most of our students! Students of science and technology may well be intent on their chosen field and

1. See pp. 335/6 for general education in Canadian pre-medical courses.

impatient of any other studies, but are they mature enough to decide for themselves in their first years? As for 'catching up with the Russians', surely the greater danger is that in our fears we may abandon the very values which made the survival of the West a universal human interest."

The calendar of the University of British Columbia does not indicate any responsiveness on the part of the authorities to Professor Thomson's arguments. Indeed in personal correspondence he says: "I regret ..... to report that as far as I know (and I think I know the field fairly well) no document exists which gives the over-all picture of General Education in Canadian universities. Actually, very little of this sort goes on. A theoretical interest can be found here and there, but that is about all."

The difficulty of finding out why Canadian practice is so different from American is illustrated by the discussion following an address by Burchard given in Canada in 1957 on general education for scientists and technologists. The discussion ranged over the 'difficulties' of implementing general education programs in Canada, oblivious apparently of the fact that Dean Burchard had just given an address showing that the difficulties can be met, and are being met, in the United States. The rest of the discussion evaded the issue politely by switching it to the need for science courses for humanities specialists and social science specialists, which was not the subject of the address, and of which Canadian educationists have little experience. Nevertheless 'the attitude of the Conference', and it contained very prominent university men from east and west, 'was one of general agreement with the speaker's thesis'! [Burchard, 1957, p. 60]

Professor Howard Bartlett of M.I.T. said[pc] that there were less frequent visitors to the School of Humanities and Social Science from Canada than from England.

President J.C. Warner of the Carnegie Institute of Technology said[pc] that engineering in Canada was developing, but it lagged some way behind the United States, where big organizations could provide their own training in practical techniques. U.S. universities

were left free to deal with the basic principles of engineering and of science, but this was not enough, he said. Education for a profession was only a part of education for society, and the basic principles of the humanities and social sciences formed an equally important study.

President Griswold said[pc] that though Canadians joined North American university organizations, they looked to Britain and not to the U.S. The example of England did not encourage Canada to take much interest in general education. Dean Carman said[pc] that there was north-south traffic between the U.S. and Canada at the post-graduate level, but Canada and Britain concentrated more on Bachelor's degrees of honours level. He added that Presidents and Deans had more power in the U.S. than in Canada and Britain, and that this was essential to break the grip of specialist professors, who found it hard to see beyond their own departments. Professor John Finley of Harvard may or may not have meant to be taken seriously when he said[pc] that Canadians were irritated by 'swinging' Americans; they had the U.S. below them and a wilderness above them, and they clung to conservative England and sober Scotland for security.

4.7. BRITAIN AND GENERAL EDUCATION.

There is evidently much of past history and present prestige, and indeed of current controversy, involved here. The historical origin of the English sixth form pattern, as described by Peterson, is dealt with in section 4.31 above. Britain developed as a world power before the extensive technological advances of this century. Liberal education was a class education, an education for gentlemen who had the leisure to be humanists. They ran society, and they did so very effectively. They left the detail of administration to technicians. This administrative class came from a social stratum where there was general education in the homes. As science forced a place for itself in university curricula, the tradition of specialization remained, in science now, as in the humanities in the past and in the present.

Ashby [1958a, p. 81] says that a revision is

necessary of the idea of a liberal education. "The Oxford Dictionary defines liberal education as education fit for a gentleman. That is still an acceptable definition; it is the idea of a gentleman which has changed. A century ago, when Britain awoke to the need for technological education, a gentleman belonged to what was called the leisured class. The occupations of his leisure did not require any knowledge of science or technology. Modern gentlemen do not belong to the leisured class. Many of them work something like a seventy-hour week."

The case for specialization, and the danger of pushing the argument for general education too far have been dealt with in chapter 1. Criticisms of the practice of general education are discussed in chapter 8. Britain, and to a lesser degree Canada, take one side in the argument, and the United States the other. These criticisms indicate the detailed reasons for British specialization. The major single cause is undoubtedly the shortage of university places in Britain. This encourages specialization in schools, because the minimum entrance qualifications of a university often are below the entrance qualifications of a particular college or faculty within the university. The specialist don seeks out the specialist school-boy, and both are happy to specialize at university level. There is equally great pressure on places in the best-known American universities, and it has been noted that an applicant with a distaste for general education would probably be excluded; in England probably only a specialist would be included.

It may be of interest to examine here just how serious this problem is in England, even at the risk of some repetition, from the age of 11+ when the fight for a place in a grammar school occurs, to 18, when the fight for a place in a university takes place. 'The distractions of the search for a place, especially at the more favoured universities ..... overshadows the whole range of sixth-form study'. [Linstead, 1961, p. 76] At university, this pressure 'appears to generate a sense of anxiety among the weaker students and too great a degree of concentration in their work' leaving 'too little time not only for any intra-curricular study of other subjects, but also too little leisure, an

essential and vital element of university life -- too little time in which to discuss and decide what the universe is like, too little time in which to go to a theatre, to listen to or to make music, to play games, to read, to sit and think -- or just to sit'. [Ibid., p. 59] This competition from 11 to 18, and the fear of being sent down after 18 unless there is full concentration on specialist subjects, is not dictated by educational considerations. Students may take as many as four A level subjects, which is much frowned on normally, merely to improve their chances of admission. [Ibid., pp. 25, 93] For the same reason, in 1958, 22% of successful A level candidates in mathematics, from boys maintained grammar schools, had already passed the same subject once, and 20% in science. The figures for girls were 13% and 7% respectively. [Ibid., p. 29] Nine out of ten science specialists in the Linstead survey who were working for an award at Oxford had more than two years in the sixth form. About one-half of boys and one-quarter of girls in the survey entering university spent more than two years in the sixth form. [pp. 28, 29] They devoted 90% or more of their sixth form study time to mathematics and science. [Ibid., p. 10] Oxford and Cambridge together have only some 18% of the total student population in the United Kingdom but their standing, and in particular the prestige of their open scholarships, means that they attract candidates in numbers out of proportion to their size. [Ibid., p. 103]

These are the problems of the top quartile. All this goes on at the expense of the second quartile, where 'the richest vein of untapped human resources lies'. [Crowther report, 1959, p. 472] That the pressure on university places is the main evil is evident from a study of the curricula for those sixth forms which are not linked with university entrance requirements, although after one or two years in the sixth, the girls and boys (mainly girls) follow a variety of interesting careers such as are available in nursing, commerce, banking, and accountancy. The point is that here more general studies can be and are included in the curriculum. [Crowther report, 1959, ch. 27, p. 302]

In 1962, the British Government called for an increase in the number of places up to 175,000. Sir

Geoffrey Crowther believes that this (4% of the age group) is insufficient. In a few years time 12% will be able to pass A level G.C.E. subjects. In Scotland there are 50% more university students per head of population than in England. [Times Educational Supplement, 29.12.61, p. 873]

It must always be remembered that pressure on university places is no reason whatsoever for the exclusion of general education from school and college curricula. In America it is those universities and schools in which there is the greatest pressure on places, where the strongest support is given to general education. A very convincing case is made in General education in school and college, which, as has been noted before, is a committee report by members of the faculties of three of the best-known schools in America (Andover, Exeter, and Lawrenceville), and of three of the best-known universities (Harvard, Princeton, and Yale). [Aelhpy, 1953] The list of institutions visited in 1955 and 1960 which appears at the end of these pages admittedly includes few if any universities which do not support the practice of general education. Firstly few such can be found in the United States, but secondly they would be institutions of little prestige.[1]

4.8. OTHER COUNTRIES.

This dissertation provides a consideration of some aspects of general education in the universities of the United States of America. The purpose of this chapter has been to sharpen thinking a little on this subject by trying to understand why Britain, geographically far from America, claiming similar ideals of liberal education, makes practically no provision in practice for university and sixth form students of the level of American undergraduates; and why Canada, geographically contiguous, seldom stressing the ideals of a liberal education outside of the 'catalogue rhetoric' of

1. Reference is made in these pages primarily to four year undergraduate curricula. Junior colleges (two years after school) have made relatively little progress in developing well-organized curricula for general education. [Medsker, 1960, p. 62] and [Henninger, 1959, p. 43] See however a description of the very well-organized program in the General College of the University of Minnesota in section 6.2.

engineering and medical schools, provides so little general education.

4.81. South Africa.

In South Africa, there is practically no provision for general education beyond the school level.

Joint Matriculation Board.

The Joint Matriculation Board ensures that students at school aiming to enter a university study either (i) three languages, and either mathematics or a science; or (ii) two languages and mathematics, together with either a science, or history or geography or economics or a subject covering history and/or geography and/or economics, variously named. It is obligatory to take either three languages or two languages and mathematics. Students have to write examinations in six subjects, and may do so in seven. Subjects beyond the first four may be chosen from a wide variety which include those referred to above, and vocational subjects, and art and music. There is no requirement of one of the natural sciences and one of the social sciences. [JMB, 1963][1]

The Joint Matriculation Board is at present (1963) considering the possibility of following the pattern of the General Certificate of Education in its examination. The Board has been urged to remember that, if the best features of the G.C.E. are copied, it is not necessary for this to mean greater specialization. Indeed, in Britain, the tendency is to less specialization. [Williams, 1962]

An extra year?[2]

This problem of school curricula is obviously related to the problem of undergraduate curricula. The Secretary of the Committee of University Principals in a letter to registrars of universities dated 6th February, 1963, has invited universities to comment on (i) lengthening the period of study for the degree of Bachelor, (ii) presence in a university of students not able to profit from university studies, (iii) an extra year between school and university. If an extra year

1. The Secretary of the Joint Matriculation Board has recently said: "If one consults past handbooks, one finds that the general pattern of Matriculation in South Africa has not really changed for the greater part of a century."
2. See section 8.24.

is instituted it probably will, and certainly should, have a 'general education' pattern.

Law.

Except in the case of law, there are practically no requirements in South Africa similar to those in America. For admission to an LL.B. course, students must have another Bachelor's degree. This may be any recognized Bachelor's degree. The purpose is evidently to ensure greater maturity before the law course is started, and not to ensure a broadly based undergraduate curriculum. The degrees most commonly taken before the LL.B. are B.A. or B. Com. The inclusion of law subjects may be allowed in the first degree, and usually Latin is insisted upon, because South African law is based on Roman-Dutch law. English and/or Afrikaans may be required to ensure language command in the courts. The purpose of taking law subjects in the first degree is to reduce the time for the LL.B. degree from three years to two.

Until recently the University of the Witwatersrand made no provision for law subjects in a B.A. curriculum, and (with a few exceptions) a full three years were required for the LL.B. degree. Compare [Witwatersrand, 1961, p. 157 and p. 86] with [Witwatersrand, 1963, p. 161 and p. 89]. Provision is made in the 1963 calendar for three B.A. courses in 'Legal theory and institutions', and for later exemption from similar LL.B. courses. On the other hand, the University of Pretoria [Pretoria, 1963, pp. 101 - 110] makes possible a B.A. curriculum (at least 11 year-courses) consisting of a maximum of 7 law courses; Latin, and English or Afrikaans, and another language course; and one other course which could be a language or a course related to law, such as criminology or constitutional law. The other South African universities have regulations between the two extremes of Pretoria and Witwatersrand.

B.D. and B.Ed.

The B.D. and B.Ed. degrees must also be preceded by another Bachelor's degree. At Pretoria University [Pretoria, 1963-64, pp. 323, 324] the B.A. preceding the B.D. may allow of three, two, one, or no electives. The main purpose of this B.A. curriculum is to allow

time for language courses (7, 8, or 9 in Greek, Hebrew, Latin and Afrikaans), together with philosophy, psychology, history of Nederlands-Afrikaans culture. In the University of South Africa, students proposing to take the B.D. degree must have completed two courses in each of Greek and Hebrew, and one in Latin, and are advised to include in the B.A. curriculum the following: English, Afrikaans-Nederlands, philosophy, psychology, and sociology. There is also a B.A. (Theology) degree consisting only of divinity subjects and languages. [South Africa, 1963, pp. 89, 90] Rhodes University [Rhodes, 1963, pp. 288, 289] has the least number of prescribed courses in the Bachelor's degree which precedes the B.D. -- any two first courses in philosophy, history, Greek or Hebrew, and these can be taken in the first B.D. year.

Students wishing to proceed to the B.Ed. degree must have obtained a Bachelor's degree, and must hold a University Education Diploma which is a one-year full-time course, which follows the first degree. The subjects of the first degree are chosen with an eye to the teaching profession, and particularly with regard to subjects which may be offered as teaching subjects. The choice is thus guided by professional considerations, and not by regard for the need for breadth in curricula.

Few breadth requirements.

Are there any other 'breadth' requirements? The Medical School of the University of Natal (for non-whites only) is a school of high standing. The course may take 7 years not 6, and includes English and speech studies, sociology, and mathematics in the preliminary year, unlike other medical schools. The purpose of the extra year, and of the extra studies, is to enable the School to maintain its high standards with students who have completed only a 'thin' secondary education. Suitable students may be admitted direct to the first year proper, and miss the preliminary year. [Natal, 1963, pp. 367, 374]

The only course in South African universities which looks like an inter-disciplinary general education course is 'Studium universale' at the Potchefstroom

University for Christian Higher Education; this is required in all first degrees. It is a course propounding an essentially Christian and Calvinist point of view, and though, no doubt, it serves its purpose well, it is not a general education course within the meaning of these pages, which in any event are concerned with secular education. [Potchefstroom, 1963, pp. 92, 359 - 361]

Distribution.

How far do South African universities insist on distribution among the natural sciences, humanities and social sciences? First, it should be noted that most offer a degree named B.A. (Social Science), or B.Soc.Sc. (Bachelor of Social Science). These are essentially degrees for professional social workers; in fact, the Stellenbosch degree is named B.A. in Social Work. They usually require one or both major subjects to be chosen from sociology or social work, or social administration or applied social work; if regulations provide for the possibility that one only of these may be taken, then the second major will most often be psychology. The Natal degree of Bachelor of Social Science offers the widest choice of subjects. Besides the above, majors are allowed in comparative African government and administration, political science, history, economics, mathematical statistics, and social anthropology. Three electives may be chosen from a wide list of humanities and social sciences and legal subjects, and even botany, chemistry, geology, physics, and zoology. No degree offers a greater spread of subjects. In order, however, to qualify by means of the degree professionally as a social worker or as a nurse, a student must face restricted choices. [Natal, 1963, pp. 180 - 189]

B.A. courses consist of majors in the humanities and social sciences, together with compulsory ancillary subjects, and some electives. As a rule, students may include 1 or 2 (Cape Town - 4: see next paragraph) science subjects in a B.A. curriculum, but they do not have to do so. There may be a distributional requirement: for example, language courses (one or more) are usually insisted upon. B.Sc. courses consist of majors in the sciences

together, with compulsory ancillary subjects. There is very little room, with a total of 9 courses normally, many involving laboratory work, for any electives. As a rule, not more than one B.A. subject may be taken -- sometimes 2: in no curriculum must B.A. subjects be taken. Witwatersrand University [1963, p. 110] requires 'Philosophy of science' in the final year of B.Sc. study.

The University of Cape Town is unusual in that it makes special provision for students to obtain two or three undergraduate Bachelors' degrees, e.g. B.A. and B.Sc., B.A. and B.Com., B.A. and B.Soc.Sc. (Special provision is made not only for B.A. and LL.B.; and for B. Com. and LL.B.; but also for B.A., B. Com., and LL.B.). B.A. and B.Sc. curricula are so designed as to make it possible to cover the joint requirements of both B.A. and B.Sc. degrees in 4 years. [Cape Town, Arts and Science, 1963, p. 23] This would prove to be an ideal method of distributing courses broadly. About 20 candidates register annually for the combined B.A. and B.Sc. degrees: about 3 or 4 per annum qualify.[1]

The B. Com. curriculum is widely taken. This may be a preliminary to an LL.B. degree in which case some law subjects are included. The curriculum may require no non-commercial subjects (none required, none elective, not even one language course) at Stellenbosch [1963, pp. 415 - 417] and Pretoria [1963-1964, pp. 343, 344] On the other hand, at Rhodes one language is required, and three non-commercial subjects may be chosen. [Rhodes, 1963, pp. 255, 256]

The B.Sc. (Eng.), and B.Arch., and the M.B., Ch.B. curricula involve no general studies. (The exception at the Medical School of the University of Natal has been mentioned. Pretoria University claims[pc] to have some general requirement for engineers, but it is not mentioned in the official calendar).

In South Africa, there is frequent discussion about preserving the values of western civilization. The country's engineers and scientists and doctors, have, after their school days, no education in the history and meaning and purpose of western civilization, beyond what they learn from casual conversation and the

---

1. For comparison the average numbers of B.A. and B.Sc. graduates for 1960, 1961, and 1962, are given: B.A. 138; B.Sc. 94.

press. The press discusses these matters very efficiently, but inevitably from a partisan political view-point, not from an objective academic aspect.

It should be remembered that the regulations for South African pass degrees require as a rule two major subjects, and to this extent their concentration requirements are wider than most British degrees. The honours degree involves an extra year, and here one subject only is studied.

Heavy vocational emphasis.

South African undergraduate curricula allow thus of practically no general studies. Where electives are possible there is little or no encouragement to use them for broadening the curriculum. It is not only in this respect, however, that South Africa undergraduate curricula are very specialized. They are also heavily vocational in emphasis. It has been noted that medicine, engineering and architecture curricula make no provision for general studies, and that engineering at the University of the Witwatersrand allows of 8 specializations: chemical, civil, electrical, land surveying, mechanical engineering, metallurgy, mining engineering, mining geology.

The University of Stellenbosch provides the following degrees after three or four years of undergraduate study.

B.A.: B.A. with legal subjects;
B.A. in social work;
B.A. with physical education as a major (and also a B.Sc. with physical education, and a post-graduate B.Ed.Ph.);
B.A. with music (and also a four-year B.Mus.);
B.A. with commercial subjects and also a B.Comm.;
B.A. (admission to theological college);
B.A. with drama (and also a four-year B.Dram. course);
B.A. with art (and also a four-year B.A. degree in fine arts).

B.Comm.: B.Comm. with law subjects.

B.Sc.: B.Sc. and B.Ing. (5 years); B.Sc. in forestry (4 years); B.Sc. in nutrition and physiology; B.Sc. in home science (4 years); B.Sc. in agriculture (4 years); B.Sc. (with physical education); B.Sc. in food technology (4 years).

B.Mil.: This may be directed either towards arts, or towards science, or towards commerce.

[Stellenbosch, 1963]

Other undergraduate degrees offered in South African universities are:

B.A.: B.A. as a preparation for broadcasting;
B.A. in librarianship;
B.A. in logopedics;
B.A. in nursing;
B.A. in public administration;
B.A. in theology.

B.Sc.: B.Sc. in building management;
B.Sc. in chemical engineering, or chemical technology, or industrial chemistry;
B.Sc. in mining geology;
B.Sc. in pharmacy;
B.Sc. in quantity surveying.

B.Com. (accounting), B.Admin., B.Econ.

The vocational emphasis these majors provide can be found in most American first degree curricula. The point of importance for these pages is that to emphasize professional possibilities in the very names of degrees to this extent, is to play up specialist possibilities and to play down generalist possibilities, to the point where the inclusion of general studies qua general is seldom if ever considered.

4.82. Rhodesia.

The statements about English schools earlier are largely true for school-boys and school-girls in Rhodesia, who write the British General Certificate of Education examinations. The major difference from English practice is that students proceeding to the sixth form do not choose whether to follow the arts side or the science side, until they have written their O level examinations. About 80% of sixth formers come from a 'quick stream': they write examinations in 7 or 8 O level subjects at the age of 16½. About 20% of sixth formers come from the slower stream: they write 7 O level subjects at the age of 17½. These subjects will be chosen from: English language, English literature, French or Afrikaans, science, history, mathematics, Latin or a second science, geography. (Some girls take domestic science instead of mathematics). Other subjects include bible knowledge, other modern languages, arts and crafts, and technical and commercial subjects.

Minor differences are the following. Even smaller percentages of boys and girls than in England combine major arts and science subjects at the sixth form level.

Considerably more time is given to physical education and sport, especially by those in school teams.

In addition to a pass in the three principal subjects (or two principal subjects and two subsidiary subjects) the Higher School Certificate regulations require a pass in the 'General paper'. (This will be replaced in future by the 'Use of English' paper).

The introduction of M level examinations, between O levels and A levels (to satisfy the requirements of South African universities), will result in four major subjects being taken in the lower sixth form, and these will be grouped as is required by the Joint Matriculation Board of the Republic of South Africa.

4.83. Germany and Holland.

Ashby [1958a, p. 79] discusses efforts of universities to defend themselves against charges of over-specialization. He says: "They are reminiscent of the campaign conducted by Wilhelm von Humboldt when he established the University of Berlin in 1810. Humboldt strove to preserve a balance between Wissenschaft (exact scholarship), and Bildung (a word which is approximately equivalent to liberal education). Von Humboldt's liberal views did not prevail long in Germany, but they have recently been revived, under the influence of a commission on university reform appointed by the British Control Commission in Germany in 1948. It is significant that the one British member of the Commission was the late Lord Lindsay, at that time Master of Balliol.[1] The Commission's report, which is deeply influenced by Lord Lindsay's ideas, has (among other things) brought about a consistent and sustained effort, since the war, to establish in German universities and Technische Hochschulen what is called the studium generale. This comprises systematically arranged lectures and seminars, visits to theatres and museums, concerts, political discussions, and so on. They are organised (I take as an example the studium generale in the University of Freiburg) by a committee which includes students, directly under the rector. A set number of days each term is put at the disposal of

1. Lord Lindsay was the first Principal of the University College of North Staffordshire at Keele.

this committee. No other classes are held on these days; the committee arranges a program which includes such features as political colloquia, chamber music groups, and reading parties which meet in a club-house in the Black Forest."[1]

Dr. R. Kronig is Rector of the Technological University (Technische Hogeschool) at Delft. He says: "The liberal education of the students at Delft and Eindhoven is a matter in which the student societies and clubs, as at other Dutch universities, play a very important role. In addition a studium generale is provided, in which lecture courses on philosophy, economics, history, art and other subjects furnish an opportunity for the student to broaden his horizon. In this way the disadvantages of an institution devoted entirely to technical subjects can, at least in part, be compensated." [Kronig, 1961, p. 5] Details of the studium generale program for the first and second semesters of 1960-61 follow. Admission to students is free. Full summaries of the lectures are published in the periodical 'syllabus'. Where one subject is divided into up to four or five parts, these are given weekly. Some lecture is given on practically every day of the week from Monday to Friday from 5 p.m. to 6 p.m. The subjects and lectures for the period 30th September, 1960 to 16th March, 1961 were as follows. The number of lectures for each subject is given in brackets.

Philosophy.
- The demands of world citizenship on our emotional life. (4)
- Existential phenomenology, a new philosophy. (3)
- Nietzsche. (3)

Theology.
- The new critical appreciation of the Bible. (3)
- The Jewish faith. (4)
- Ecclesiastical comprehension. (4)
- The Christian faith and ideology. (3)

Psychology.
- Psychotechnics: the adjustment of man to his work and vice versa. (3)
- The main aspects of general psychology. (3)

Natural science.
- Physiology of the senses. (4)

---

1. Professor H. Rund (University of South Africa) who has taught in Germany and in Canada said[pc] that the studium generale in Germany enjoyed much more prestige than general education in Canada. For general education in German and French schools see page 154.

History.
Earliest habitation of the Western Netherlands. (3)
The modern university as a product of its past. (3)
Old Red Indian civilizations in the New World. (4)
The history of Surinam and the Dutch Antilles. (3)

Social science.
The population problem in Holland. (3)
South America. (4)
Cultural aspects of European integration. (2)
The role of money in the economy. (3)

Art.
Delft masters. (4)
Marsman and his time. (3)
Church music. (4)
Shakespeare, friendship and love. (3)
Modern sculpture and its background. (3)

Course on sexology.
A cultural-historical approach. (1)
Between anxiety and overconfidence. (1)
Passable roads. (1)
Adult love. (1)

Course on life and death.
Problems of life and death. (4)
The wonderful virus. (1)

[Delft, 1960-1961]

4.84. Australia.

At the University of Melbourne in the Department of Electrical Engineering, the following sequence of non-professional courses is provided: 'Report writing (rhetoric)' in the second year, 'Book study' in the third year, and 'Discussion sessions' in the fourth year.

This sequence arises from a visit by Professor C.E. Moorhouse, the Head of the Department of Electrical Engineering, to America under a Carnegie Grant in 1955. It owes something to the English 'Identification and comprehension of ideas' course at Brown University, Providence, R.I., and also to a request from the Engineering Students Club at Melbourne that set books should be read, and essays of some 2,000 words submitted on a selected aspect of each book. In point of fact, each student is given one question based on the book, and has to write a short reply (200 to 400 words) to it, following lectures on the author and on various aspects of the book. Each student has to develop his answer to a class (not more than 30 in size), and discussion is invited. One afternoon a week is devoted to this in the 7 week third term. (The first term is 10 weeks, and the second term 9 weeks). The time is taken from the third year Electrical Design course.

Books, with a wide range of ideas, preferably controversial, are chosen. It was decided in 1955, to choose a book falling in the class of the 'Utopias', and George Orwell's 'Nineteen eighty-four' was selected. The first lecture by the Head of the Department outlined the scheme of study, and mentioned some collateral reading -- Koestler's 'Darkness at noon' and Huxley's 'Brave new world'. Chaplin's 'Modern times' was available for viewing in the local theatres at that time.

A second lecture was given by a member of the Department of English on Orwell as a novelist. The third lecture by a member of the Department of Political Science outlined the main political ideas involved. Then a member of the Department of Law discussed the apparent absence of law (as now understood), and the rewriting of history. The Student Counsellor, a psychologist, discussed the dangers of over-organization of human beings. Finally a member of the Mathematics Department speculated about the possibility of the whole novel being a spiritual allegory. One hour lectures are followed by discussion.

In 1956 Butler's 'Erewhon' was used as the main work, and in 1957 Huxley's 'Brave new world'. The book study for 1961 centred around 'Trouble with lichen', and for 1962 around 'War with the newts'.

After the 1961 third year, students were required to read during the long vacation, 'Crime and Punishment' by Feodor Dostoevsky, and 'Doctor Zhivago' by Boris Pasternak. This was preparatory to the discussion sessions of the fourth year class in 1962. Members of the Department of Russian conducted a study of four classics -- 'Short stories' by Tolstoy, and 'Plays' by Chekhov, in addition. During the second term civil engineering students joined electrical engineers in discussion sessions on art, music, and literature, following visits to galleries, participation in painting classes, and lectures of musical appreciation and the study of poetry. Discussion sessions involve a course of about three hours weekly throughout the year. Some reading and essay, or project work, is included and candidates are assessed on the work performed. Reference to discussion sessions appear in

the handbook only under 'Electrical engineering'. [Melbourne, 1962, pp. 77, 99]

Some of the views expressed by Professor Moorhouse in two unpublished papers follow. [Moorhouse, 1961] Tertiary education in Australia, which tends to follow the English pattern, is highly specialized. The secondary-tertiary period is now 4 years in length. It has been suggested that it be increased to 6: from 1 to 2 for matriculation, and from 3 to 4 for a first degree in arts and sciences. The new (1961) four-year 'Applied science' courses will include studies similar to those in the Department of Electrical Engineering. Specialization might not be so serious if most students lived in university residences, or came from cultured homes and enlightened schools. Many students come from families of which they are the first members to attend university, and in which reading books is not a common occupation.

Universities, therefore, should take practical steps to encourage students to think about, write about, and discuss topics outside of their specialties. If begun even in a small way, the practice will develop. It is a mistake in any case for a Department to give students the impression that they must abandon everything else when they enter it. Professor Moorhouse warns against the mistake -- which he thinks some American universities make -- of trying to do too much in too limited a time. He finds considerable enthusiasm among students in their later years, but the first years show less interest, because this is a year of transition. He thinks the work should be conducted by experts from other Departments, because the professional is better than the enthusiastic(and naïve) amateur. They must be supported by the staff members of the students concerned. They should be arranged in a designed sequence. They should be carried out within ordinary time table hours. The student should not be required to undertake an additional burden, but should feel his Department thinks the studies sufficiently important to find time for them.

Professor Moorhouse quotes G.K. Chesterton with approval.

"Ideas are dangerous but the man to whom

> they are least dangerous is the man of ideas. He is acquainted with ideas and moves among them like a lion-tamer. Ideas are dangerous but the man to whom they are most dangerous is the man of no ideas. The man of no ideas will find the first idea fly to his head like wine to the head of a teetotaller."

Professor Moorhouse visited 14 U.S. Schools of Engineering, and reported on their programs, and the difficulties in the way of implementing similar programs in Australia. He concludes as follows: "I hope that by pointing out some of the difficulties and criticizing some of the subjects, I have not obscured my own entire agreement with the general ideal. I do feel that we must encourage the development of humanities subjects in our own engineering courses, and that there is a great deal we can learn from the American Schools in setting up our own."

At the University of New South Wales, all undergraduates in faculties other than the Faculty of Arts are required to complete a number of courses in the humanities and social sciences. Social science electives must be chosen from 12.191 psychology, 15.011 economics, 53.011 sociology, 54.011 political science. Advanced electives must be preceded by a previous course in the same subject: 12.591 psychology, 15.012 economics, 50.012 English, 51.012 philosophy, 52.012 history, 53.012 sociology, 54.012 political science. The following courses do not have previous courses as pre-requisites: 11.011 history of fine arts, and 52.052 history of science.

A. Day degree courses.

(i) Four year courses in the Faculty of Science (applied chemistry, applied psychology and optometry only); Faculty of Engineering; Faculty of Applied Science.
2nd year -- 50.011 English.
3rd year -- 51.011 history or 52.011 philosophy and a social science elective.
4th year -- an advanced elective.

(ii) Faculty of Architecture: the same, except
4th year -- 11.011/1 history of fine arts, part A.

(iii) Faculty of Science, honours (4-year) course.
-- as in (i)

(iv) Faculty of Commerce
-- two from 50.011 English, 51.021 history, or 52,021 philosophy.

-- Commerce students, for whom a general option is prescribed, either take the third course above, or a second course in one of the two chosen (50.012, or 51.022, or 52.022), or 54.021 political science.

(v) Medicine
2nd year -- 50.011 English.
3rd year -- 51.011 history or 52.011 philosophy.
4th year -- a social science elective.
5th year -- an advanced elective, or a further course to be determined.
6th year -- a further course in the advanced elective chosen in the fifth year, or a further course to be determined.

B. Part-time courses. The subjects to be taken are very similar, but are spread out over the longer period of the course.

Full-time students may substitute certain arts subjects for the required humanities. In general, this means that students may complete all the humanities requirements by undertaking two arts courses only, e.g. English I and English II, or Philosophy I and Psychology I etc. [New South Wales, 1963, pp. 247 - 253]

Arts students must take at least two courses in sequence in 'Scientific thought' or in one of the natural sciences (physics, chemistry, geology, biology). A maximum of four courses may be taken from this group, or seven from this group and mathematics and statistics. The two science courses required are the counterpart of the subjects taken by students of other faculties in the humanities and social sciences. [Ibid., pp. 238 - 240]

4.85. India.

The University Education Commission of 1948-49 produced a report which devoted some sections to general education. It recommended general education not only during school years, but also in the more mature university years, 'to correct the extreme specialization which now is common in our intermediate and degree programs'. By 1953, some universities began an experiment in general education on a small scale. In 1956 a team of specialists in the natural sciences, social sciences, and humanities was appointed, and had discussions in Aurangabad with Dr. F. Champion Ward of the Ford Foundation, and Shri K.G. Saiyidain, educational adviser to the Government of India. The team then spent eight weeks in the United States of America, and six in Great Britain. [India, 1957,

pp. 1 - 4] The report deals with the scope and purpose of general education, features of higher education in the United States, and patterns of the general education program in America and at Keele.

The authors recognized that specialization is necessary in a country 'bending all its energies so as to create, as rapidly as possible, the essential pre-conditions of raising living standards for all'. It also recognizes that general education is not hostile to specialization. [pp. 11 - 15] At the time of the report (1956), India had enjoyed independence for only ten years. Higher education had been through the medium of English, and this 'encouraged the development of a gulf between the educated and the large masses of [the] people'. Nevertheless 'English education has left ..... a valuable legacy which must be preserved ..... The Ramayan and the Iliad, Kalidas and Shakespeare can all become valuable elements in the heritage to which an Indian student can now be introduced ..... What was hitherto a serious disadvantage for us can thus now be turned to our advantage'. [p. 16]

The day when the leisured few enjoyed a liberal education, and the masses provided the vocational skills, has gone. The traditional liberal curriculum of mathematics, Latin and Greek classics, and Christian ethics, has been almost completely disrupted by the rapid development of modern science and the growing complexity of social organization. "Liberal education seems to be fighting a losing battle everywhere, and it is argued that if it is to survive and reassert itself, it can only do so as general education. It may be that in the United States, the impact of these forces was felt earlier or in a much more intense form. These forces are however, not peculiar to American society; they are universal in their operation." [pp. 7, 8]

The authors say that a rapidly developing society must be free of the impeding influences of cultural tensions and conflicts. India has a number of such tensions -- caste, class, language, and religion. Education will lead to an understanding of complex social forces and the necessary creative adjustments. "Social homogeneity, so essential for the realisation of social justice and the functioning of a democratic

policy can thus alone become a growing reality." Economic development based on modern technology, requires a knowledge of science. "Acceptance of general education, as a component of the education of the growing generations of our students, will therefore meet an essential need." [pp. 17, 18]

The authors make frequent reference to General education in school and college, and to the need to coordinate general education at the secondary school level and the university level.

The report contains recommendations that general education in the humanities, social sciences, and natural sciences should be introduced. One-third of the three years needed for a first degree should be given to general education. It should appear also in professional curricula, and the passing of an examination in general education should be a condition of graduation. This scheme, the authors hope, will in due course be incorporated in all Indian universities. An interim scheme requiring less time is recommended for immediate adoption. Suitable syllabuses containing material from Indian and Western cultures are proposed. [pp. 78, 91]

(For examination papers of the Massachusetts Institute of Technology and Columbia College, see page 112)

UNIVERSITY COLLEGE OF NORTH STAFFORDSHIRE

FOUNDATION YEAR EXAMINATION

June 1961

Paper I

Thursday, 8th June, 2.15-5.15 p.m.

Candidates should answer FOUR questions, selecting at least ONE from each section.

Begin each answer on a fresh sheet and write the question number on each sheet. Your name must be written clearly at the beginning of each question.

SECTION I

1. 'A poetic drama is not a play conceived as prose and subsequently ornamented with poetry; the drama lies as much in the poetry itself as in the plot or the character.' Discuss with reference to ONE or TWO plays by Shakespeare.
2. Outline, with reference to specific works, what you would stress as distinctive of ONE of the following kinds of English literature: an epic; an Augustan satire; a Romantic lyric; a Victorian novel.
3. What do you understand by either the Reformation or the Renaissance in Europe?
4. Account for the widespread influence of the "French Revolutionary idea".
5. What were the reasons which prompted the Romans to annexe this country?
6. Try to convey, without indulging in vague superlatives, what gives the Oedipus Rex of Sophocles its tragic effect.
7. Philologists speak of "Families" of languages. Explain what is meant by this.
8. "To us the small bright world of French classicism is apt to seem uninteresting and out of date." How would you 'defend' classicism?
9. What are the features of a good scientific theory which make it good?
10. Consider the logical character of any ONE social theory.
11. "The glory of Judaism lies in the teaching of the Law and the Prophets." Discuss.
12. "Christianity addressed itself to the world of the First and Second Centuries AD with the triple advantage of a reasonable dogma, a tremendous moral force and an admitted historical basis." Discuss.

SECTION II

13. What were the economic and social effects of the invention of the bicycle?

14. Why are some countries better off than others?

15. Are the findings of sociology likely to have any predictive value?

16. "Parliamentary democracy is not an article for export." Comment.

17. "The faculties of arts in universities are dying where they are not already dead." Discuss.

18. What are the advantages and disadvantages of having a centralized organization of education?

19. How far is conscience a reliable guide to moral conduct?

20. Should anyone sacrifice his own greatest good for the good of others?

21. It is sometimes facetiously said that in Britain we do not have climate, only weather. What is behind this statement?

22. Attempt a sketch of the background to the present-day theory and practice of Town and Country Planning in Britain.

23. Examine the concept of introversion-extraversion as expounded by Jung and comment on some current distortions of the original idea.

24. What advantages over lower animals does man derive from his more complex brain?

SECTION III

25. (i) Find the probability of one column being correct in a 12-match football pool in which all matches must be forecast as a home win, away win, or draw.

(ii) Three people are selected at random from the population of Britain. What is the probability that all their birthdays are different? (Take the year to consist of 365 days).

26. "The pure mathematician is concerned only with the abstract whereas the applied mathematician is concerned only with the practical." Do you think this statement is valid? Support your answer by a detailed discussion of typical problems.

27. In what ways can the distances of (1) the nearest planet, (2) the nearest star, and (3) the nearest galaxy, be measured?

28. Describe briefly the most important Scientific discoveries, made between 1910 and 1945, that contributed towards the controlled release of nuclear energy.

29. Write a short essay on the "Alkali Section of Chemistry Industry".

30. Describe in outline, without experimental details, how the structural formula of an organic compound is determined. Give <u>three</u> examples of such formulae, and comment upon any structural features in them which are common to a number of organic compounds.

31. 'The concept of positive health is vastly different from that of the cure of disease'. Describe the bases on which such a statement is made and evaluate the idea.

32. Discuss the role of natural selection in evolution, and answer the criticism that it is an easy way out of many difficulties.

33. State how you would demonstrate scientifically that fossils are the remains or traces of animals or plants of the past.

Paper II

Friday, 9th June, 9.15-12.15.

Candidates should answer FOUR questions, selecting TWO from each section. Begin each answer on a fresh sheet and write the question number on each sheet. Your name must be written clearly at the beginning of each question.

SECTION I

1. What sorts of questions does a literary critic ask and how does he go about answering them?

2. "Force is the basis of all political systems". Examine the development of feudalism in the light of this dictum.

3. Discuss the ways in which Roman poets have influenced English literature: illustrate your answer by particular examples.

4. What are the main differences between ancient Greek and modern Christian moral standards?

5. How would you argue the case for assigning the study of language to the "social" studies?

6. What is philosophy of history?

7. "Historical research cannot prove the truth of Christianity but the truth of Christianity does require that the most careful study should be made of the results of historical investigation." Discuss.

8. What part can an Economist play in politics?

9. You are asked to advise on a constitution for an illiterate population in an economically backward country with poor communications. Which type of governmental system will you recommend and why?

10. "Universal literacy should be the first aim in educational policy for an under-developed country." Discuss.

11. Discuss Plato's view that there will be no respite from evil until philosophers are Kings.

12. The average British industrial town is a creation of the Industrial Revolution and the Victorian era. Elaborate this statement, with examples and indicate some of the planning problems which result from this growth-pattern.

13. Has the development of psychology in any way influenced our ideas of right and wrong?

SECTION II

14. Assess the relative contributions made by Galileo and Newton to science in the seventeenth century.

15. "It has now been shown that in some cases electrons behave very much like waves, and electromagnetic radiation behaves very much like a stream of particles." What is the experimental evidence for these two statements, how have they influenced the general philosophy of physics, and what practical applications have followed from them?

16. Give a short account of the main uses of coke in chemical industry.

17. Give a short account of the contributions to chemistry of one of the following: (i) Dalton, (ii) Mendeleef, (iii) Rutherford and his school.

18. 'Breeding better crops is easy. Breeding better people is very difficult.' Discuss.

19. Biology is not, and can never be, Chemistry.

20. Discuss the scientific and cultural value of the connexions between Geology and (a) Biology, (b) History.

CHAPTER 5.

COMMUNICATION IN GENERAL EDUCATION: LITERACY AND NUMERACY.

5.1. COMMAND OF THE MOTHER TONGUE.

The lack of fluency in writing especially, but also in speaking, on the part of undergraduates is often bemoaned. Effective communication depends not only on the ability to write and to speak, but equally on an interest in reading -- indeed a habit of reading --, and a practice of active listening which is very different from mere passive hearing. Equally the language of mathematical equations and of graphs, and also of statistics and charts, is necessary for communication in the fields of the natural and social sciences. The need for literacy and numeracy was referred to on page 156, and is elaborated in section 5.3 below.

5.2. WEAKNESS IN ENGLISH.

Just how widespread is weakness in the use of the mother tongue? This is not confined to school-boys and school-girls and undergraduates. Dr. William C. Warren, Dean of the School of Law of Columbia University, in a much-quoted remark, said: "We are entitled to expect that the college graduate be able to read argumentative or expository prose swiftly, comprehendingly, and retentively; that he be able to express himself in speech and writing grammatically, literately, and precisely; that he has learned the basic lesson of using a dictionary. But we have found that few of our entering students, however carefully selected, possess these skills to the extent needed for law study." Despite the fact that about eighty per cent of these students had had special training in English composition, Dean Warren expresses dismay with their general ability to write. "Even the most tolerant of critics will concede that whatever be the arts of which the students are bachelors, writing is not one of them. We can't teach them to put their thoughts in order, we cannot teach them grammar; we cannot rectify their clumsy use of language." [Carlin, 1960, p.9]

Griswold [1959, p. 43] refers to the recommendation of the Association of Graduate Schools that an examination in basic command of the English language be required for admission to these schools. "That the graduate schools of our universities should find such a requirement necessary for candidates for the Ph.D., the highest earned academic degree awarded in the United States, is striking evidence of shortcomings farther down the educational line."

The study The liberal arts as viewed by faculty members in professional schools by Dressel, Mayhew and McGrath [Dressel, 1959] analyses 3400 replies received from 6,000 inventories, distributed by the deans of 182 institutions dealing with agriculture, business, education, engineering, home economics, journalism, nursing, pharmacy. In every case English composition was placed first as the most essential component of general education. The other subjects about which enquiry was made were mathematics, history, chemistry, speech, physics, economics, literature, psychology, biology, sociology, foreign language, philosophy, physiology, political science, music, art, religion. These are placed in the order of percentages indicating that the subject should be required of all students. The percentage for English composition was 96.4: 2.2% replied 'optional but encouraged': 0.6% 'optional': 0.2% 'discouraged or prohibited'. The figures for literature, which appears a little above the middle of the list above, were: 44,3%, 32.9%, 20.6%, 1.1%. [Ibid., pp. 21, 35][1]

McGrath [1959a, p. 23] refers to a study of over 13,000 degree-holding employees of the General Electric Company. Those who had not attended engineering schools placed English communication, both oral and written, at the top of the list as the most important undergraduate subject in terms of career value. Engineering graduates placed English second -- second only to mathematics.

The authors of General education in engineering [ASEE, 1956, p. 14] refer to the importance of "the ability to organize thoughts logically and to express

---

1. See also pp. 7 - 21.

them lucidly and convincingly in oral and written English. Here the committee found the greatest expression of dissatisfaction with actual results, possibly because results, or the lack of them, are more readily detectable here than they are in most other fields. From all parts of the country came the now standard complaint that students could not read or write adequately, and could not express themselves orally with either clarity or precision. Alumni groups and spokesmen for industry are almost unanimous in pressing for more work in English -- meaning always writing and speech. Yet the non-technical studies in many engineering schools already consist almost exclusively of work in communication skills, with perhaps a course in economics as the sole concession to the remaining aims of a humanistic-social program."

"The most disturbing factor in this whole 'English problem' is the staggering discrepancy between effort and results. Students normally begin their schooling with a reasonable command of the English language, acquired primarily from the home. They then study English in one form or another continuously throughout the elementary and secondary grades, or for a total of twelve years. Yet is is a commonplace that colleges regard this preparation as inadequate, and the freshman English course is the closest thing we have to a universal requirement in collegiate education. On top of this, engineering schools commonly add a speech course or two and a course in technical report writing. But the complaints of inadequate proficiency still pour in."

" Obviously, something is deeply wrong here, either with our definition of what it is we are trying to accomplish, or with our way of going about it. If the same amount of time and money and manpower were devoted, with such apparently disappointing results, to the teaching of any other subject in the curriculum, it would be regarded as a national scandal."

Nearly twenty years ago, the authors of A college program in action, [Columbia, 1946, p. 149] said: "Today the fact can be summarily stated, and without qualification, that the writing of a very large proportion of our American high school graduates is bad writing. It is bad, sometimes incredibly bad, for what must be expected of a man in college."

Thomas [1962, p. 59] says that "there is a reasonable doubt that training in the understanding and use of the English language is generally as rigorous as it was even fifty years ago." He makes clear, in fairness to the teaching staffs in schools, that "the growth of student population, unmatched by a proportionate increase in instructors, has made their task often grotesque and all but impossible to achieve." Personal enquiry almost invariably leads to the statement that not enough written work is given and marked in the American high schools.

Professor Watson Thomson is a teacher of English in Canada, and after many discussions with American teachers of English he says: "Their diagnosis -- in which I concur -- is that the widespread incompetence in verbal expression is to be accounted for, in part by a failure of elementary and secondary school teachers of grammar and composition, but much more by the deep changes in our culture as a whole. The past generation has witnessed a rapid process of 'de-literation' (radio, TV etc. taking the place of books) and de-intellectualization, a 'flight from ideas' which may (speaking speculatively) be an unreflective response to a world-wide condition where ideas are equated with ideologies and ideologies with propaganda, and where machines and techniques appear to be so much more potent than ideas."

"Be that as it may, the fact is that the student has, at least in Canada, been regularly exposed to instruction in grammar and composition in our public schools for years before he comes to university, and the evidence suggests that he resists the process very successfully in both places. The minority who are reasonably literate when they reach university are those who, by reason of their intelligence level, and their good luck at home, and school influences have become habitual readers and are genuinely interested in ideas as such." [Unpublished memorandum, 1957, p. 10]

A sub-committee appointed by the University of the Witwatersrand to enquire into the possibility of a basic-training year at the end of school years made these comments about the mother tongue. "Ability to comprehend and use the mother tongue through speech and writing is essential for all students. We shall

confine ourselves for the present to English-speaking countries, and would emphasize that in all those there is a growing concern about the lack of this ability in young people, and a growing demand that the schools and universities should give serious attention to the matter. Evidence of this is piling up in repeated pronouncements by educational commissions and leaders in the professions, business and the Civil Service. Your Committee will quote one such recent pronouncement, from a report to the Secretary of State for Scotland by the Scottish Advisory Council on Education: 'The unique significance of this study (i.e. of the mother tongue) will never emerge if it is thought of simply as one subject among others. Rather is it the instrument and pre-condition of all intellectual progress, entering into education at every point and inescapably the concern of every teacher. It matters supremely to the individual, for to be less than fully articulate is to suffer some arrest of development and some dimunition of powers. It matters no less to the community, since the continued health of democracy depends on a widely diffused ability to use and understand words -- and to be proof against their misuse by others ..... The experience of two generations has revealed what an immense undertaking it is to produce a fully literate and articulate population. But educationally all else hangs on it.(CMD 7005, H.M. Stationery Office, Edinburgh, 1947, p. 18)." [Witwatersrand, 1948, p. 5]

It will be remembered that the authors of the Linstead report recommend that study should be compulsory (for scientists and technologists) in English. The argument for English rests on the "widespread criticism of failure [of graduate scientists and technologists] to achieve adequate powers of expression in their own language, whether in speaking or in writing. These criticisms are not directed only towards scientists and technologists thought it must be admitted that they are more often directed towards them than towards others." [Linstead report, 1961, p. 78] Indeed, Ashby says that inarticulateness is an occupational disease among technologists. [Ashby, 1958b, p. 484]

The Oxford committee appointed to review the

requirements for admission into the University say: "We think there will be wide agreement that far too high a proportion of undergraduates at the time of their matriculation find undue difficulty in expressing themselves clearly and accurately in their own language. The standard of English appears to us to be in general regrettably low, not only among the majority of candidates for admission to Oxford but also in the country as a whole. We believe therefore that there is an extremely strong case for requiring something more than English Language at O level in the General Certificate of Education, because what in fact has happened is that no serious attention to English as such is being paid in many schools once this hurdle has been passed." [Oxford, Cambridge, 1960, p. 7] The Cambridge Syndicate, with a similar assignment, found that an O level pass in English was "insufficient to ensure that a candidate for admission to the University had adequate facility in the use of English to enable him to undertake a course of reading in the University." It is noted that the Board of the Faculty of English 'welcome with enthusiasm' the proposal for the introduction of 'Use of English'. The Association of Head Masters and Head Mistresses were equally favourable. [Ibid., pp.3,34] The committees of both universities found that "in some schools no serious attention is paid to English as such, once the hurdle of the ordinary level has been passed." The recommendations of these committees will be implemented in 1964 for Oxford, and in 1965 for Cambridge. [SSCE, 1962, pp.9,10]

The Secondary School Examinations Council [1962, pp. 10, 11] describes the present situation in the schools. "Among the schools we consulted we found almost unanimous agreement that the standard of competence in English among sixth formers had declined in recent years. Our enquiries have led us to believe that there are four main reasons for this.

First, reading and writing now occupy a less important position among means of communication than they once did. Boys and girls (as well as adults) seek relaxation in the cinema and television rather than in reading, use the telephone rather than write a letter, and generally prefer oral and pictorial means of communication to the written word.

Second, traditional methods of studying the English language in secondary schools have not been wholly effective. The treatment of the structure of the language has often been based upon grammatical rules

derived from classical Latin, or from abstract theories based upon insufficient knowledge of language development, which are inappropriate to modern English. Examinations at ordinary level have naturally followed the same pattern and so have tended to prolong a misdirected method of teaching which assumes that a living language is subject to a single set of rules of correctness and incorrectness, regardless of style or occasion.

Third, there have been substantial increases in the number of pupils staying on in the sixth form. The change in the sixth form from a small to a large group has meant that a severe strain has been put on the facilities available, such as teaching accommodation and library provision, and that each pupil receives less individual attention.

Finally, the keen competition for university places has led many sixth formers to abandon the study and practice of English as such after they have passed the G.C.E. examination at ordinary level, in order to concentrate their time and energy on the study of their specialist subjects. Moreover, hard pressed teachers of English in the sixth form, fully occupied in preparing their specialist pupils for the advanced level examination in literature, have had little time left over for the non-specialists, so that non-specialist study of English is often withdrawn just when it is most needed. The need is greater for some sixth formers than for others, since in the gaining of a command of a received form of English acceptable for academic needs some have had less than others from their home background and their traditional modes of speech. Our enquiry made it clear, however, that the problem was not confined solely to these - it concerned a high proportion of all university entrants." The Council has some reservations about the Oxford and Cambridge decisions. It does not wish to see 'Use of English' become a G.C.E. examination. It believes that a test of English can be combined with a test of general education. [SSCE, 1962, pp. 9 - 16]

The most striking indictment of English standards occurs in the following letter to the Editor which appeared in The Times Education Supplement, of 22nd May, 1959. [No. 2296, p. 947]

Sir,

> As teachers of English at all levels meet similar problems, and most of us wish for all appropriate and possible continuity between different stages of English teaching, there may be some interest in observations made by examiners in both the Preliminary Examination and the Final Honour School of English Language and Literature at Oxford.
>
> We offer these observations hoping that they may raise questions about the measures likely to correct prevalent weaknesses in the study of English, and the levels at which such measures may most hopefully be taken. In commenting on weaknesses, we trust that we shall not be regarded

as lacking in recognition and gratitude for the work showing excellence in every way which is done by pupils of many different kinds of schools.

In the spring Preliminary Examination of 1958 (taken by most candidates after two terms work at the university), and in the Final Honour Schools of the same year, some faults appeared in the work of all but a very few of the best candidates. It should be emphasized that the large majority of candidates consist of neither fools nor knaves, whose work is not relevant to the present questions; and that due allowance has been made for the slips that occur under the stress of examination conditions. Most candidates had clearly worked hard to gain accurate knowledge of set texts and all compulsory parts of the syllabus, and had acquired also acquaintance with much learned comment. The use of this knowledge in written examination, however, was constantly flawed by weaknesses which can all be related in some way to long-standing habits of inadequate reading, reading inadequate in both width and depth.

Lack of range showed itself most clearly in pitiably feeble vocabulary. 'Upset' and 'worried' were often the strongest descriptive terms applied to characters of Sophocles, Shakespeare, or Racine in their extremes of passion. Flabby periphrases were substituted for words of strong and definite meaning. From the wide range of sentence-structures open to writers familiar with English books in any variety, a very few were monotonously chosen.

Lack of depth and grip in reading was most immediately evident in erratic spelling and crude punctuation. To misspell proper names familiar in works studied and even words correctly printed on the question papers shows lamentable inaccuracy in observing and hence in remembering. To obscure sense by uncertainly scattering commas and dashes betrays failure to recognize the part played by accurate pointing in communication between writer and reader.

This slackness in reading is probably a major cause of the commonest weakness in using information - irrelevance. Candidates seemed to lack the habit of applying their attention to the questions asked, and nervously or carelessly wrote down all that some word in the question first called out from their memories, with the depressing result that work full of accurate information completely failed to answer the questions chosen by the candidates. Such work is usually dull to the students as well as to the examiners.

Bad writing habits resulting from bad reading habits cannot be corrected in the first few months of a university career. If they are deeply ingrained it is too late at this stage completely to correct them at all. Attempts at correcting them steal time and energy which ought at this

level to be available for other parts of the study of English.

We should be interested to know what teachers at various levels in schools think of the problem.

M.E. Griffiths,
E.J. Dobson,
Catherine Ing,
Oxford.

Editorial comment, as was to be expected, was strong. From The Times Educational Supplement comes the following. [No. 2296, 22nd May, 1959, p. 925]

"If Oxford is as bad as this, what can it be like elsewhere? And these candidates who write so carelessly are not chemists and physicists or engineers, but young people fresh from schools where English was a specialist subject which they liked so much that they elected to pursue it at the university. Their deficiencies can hardly be put down, as every failure seems to be in these days, to poor home backgrounds -- after all, Oxford suffers less from these than most universities. Are schools failing to insist on the disciplines proper to academic study?

Technology [July, 1959, vol. 2, no. 7, p. 1] also stresses that the Oxford examiners "were complaining about people who had specialized in English at school and had been selected by their colleges to study it at the highest level (if one leaves out Cambridge) England provides. Their views were interesting. Their complaints ought to make us ask whether we are not missing out something vital from this whole business of further education and training. If Oxford English graduates are as illiterate as that, what can we expect from Bachelors of Science and Diplomates in Technology.

For let us face it, no great feats in English are demanded of the entrant to a university or college department of engineering. Mathematics, physics, chemistry, yes -- a fairly sharp inquisition is maintained in these subjects. But English we assume is something that must be there. So strongly do we assume it that attention to a student's proficiency in his mother tongue in an engineering course is hardly ever given. If that is so, and it is, what we have to ask ourselves is whether all the pious public talk about more education in engineering is not a Gadarene exercise in pursuit of the Russians (we do them an injustice, because they at least teach Russian carefully and well) and at the same time a futile waste of public money -- a waste in that we ought to get more out of it.

Mr. K.S. Ferguson, the Education Officer of Hoover Limited, wrote to the Educational Supplement in the argument that followed the Oxford complaint, with the point that a works supervisor who cannot make himself understood in his speech or writing was a fertile source of

> industrial unrest. In this he was dead right. He might have added that anyone who cannot speak English to begin with will not cut much of a figure as a salesman in Germany or Spain. The truth is we are letting ourselves be carried away. We are trying to put roofs on half-built houses. The whole massive system of committees which controls our engineering education ought to take a close look at itself in a glass. What is the use of producing a race of dumb technologists, when if anyone gave thought to the matter they could all speak? Liberal studies? We are running before we can walk. One aim only needs to be put before the engineer and technician aside from his craft: to speak and write his own language clearly and competently. What departments or colleges try? Which succeed?

James throughout his Essay on the content of education refers often to the need for a variety of intellectual, practical and aesthetic experiences, and for spiritual experience, which is the whole of which these are merely the parts. No subject can better develop the thinking, and the doing and the feeling aspects of the individual's personality than English. For the mother tongue is the vehicle for all thought and the tool of all reading; it provides ample opportunity for practical expression through writing and speech; literature affords an invaluable opportunity for aesthetic experience. But a study of the mother tongue is unique in providing an opportunity for achieving these objects for all students of all levels of ability and all ages. No subject can contribute more to general education in its own right. But no other subject can contribute to general education at all in the absence of skill in and appreciation of the mother tongue.

5.3. LITERACY AND 'NUMERACY'.

In the last chapter brief reference was made to general education at school and its relation to general education at college and university. It appeared that 'whatever else a school curriculum is expect to do, it must at least make provision for literacy and numeracy'. It must be emphasized immediately that, thought this may be a necessary condition of general education, it is not a sufficient condition of general education.

The analysis of the authors of the Crowther report is so admirable a statement, that it is quited in extenso. Literacy in the first place means "the ability to speak

and write clearly and correctly at a level commensurate with .... general intellectual ability, and to understand thoroughly what others write. This is much more than a simple knowledge of spelling and grammar -- though accuracy in these is important. It is not something which can be acquired, at any rate by most boys, by the time they leave the Fifth Form. They are not by that time mature enough to understand the ideas and concepts -- in politics or science, for instance-- which they will need to master and express as they grow older. During their Sixth Form years they will need to use language to express more difficult ideas and to develop more extended and complex arguments than they have met before. They need also to develop the skill to follow closely a chain of reasoning and to detect fallacies in it. The ability to do these things does not come to most people without teaching and practice. It is no part of our purpose to discuss teaching methods; our concern is to see that schools recognise the task and provide the time. A pass in 'English language' at Ordinary level at the age of 16 does not guarantee effective communication at the level of an 18 year-old. But by the literacy at which a Sixth Former should aim we mean much more than this. We mean that he should, by the time he leaves, be some distance on the way to becoming a well-read man. The teachers to whom he will say good-bye when he leaves school should have introduced him to the company of teachers to whom he need never say good-bye: great writers and thinkers whose work is a permanent enlargement of the human spirit. In history or in literature he can encounter human problems and get wisdom and understanding as he follows the interplay of the ponderable and imponderable forces which shape human destiny. By 15 he is ready for very little of this; but if he has not begun to find it by the time he is 18 or 19 he may never do so, for in the adult world he will have to find it for himself. The years in the Sixth Form are crucial years in which the foundations of a sound social and moral judgement can be laid. They are the seed-time for a life-long harvest."

"Literacy has long been important, and its value is as great as ever. Just as by 'literacy', in this context, we mean much more than its dictionary sense of

the ability to read and write, so by 'numeracy' we mean more than mere ability to manipulate the rule of three. When we say that a scientist is 'illiterate', we mean that he is not well enough read to be able to communicate effectively with those who have had a literary education. When we say that a historian or a linguist is 'innumerate' we mean that he cannot even begin to understand what scientists and mathematicians are talking about. The aim of a good Sixth Form should be to send out into the world men and women who are both literate and numerate. It is perhaps possible to distinguish two different aspects of numeracy that should concern the Sixth Former. On the one hand is an understanding of the scientific approach to the study of phenomena -- observation, hypothesis, experiment, verification. On the other hand, there is the need in the modern world to think quantitatively, to realise how far our problems are problems of degree even when they appear as problems of kind. Statistical ignorance and statistical fallacies are quite as widespread and quite as dangerous as the logical fallacies which come under the heading of illiteracy. The man who is innumerate is cut off from understanding some of the relatively new ways in which the human mind is now most busily at work. Numeracy has come to be an indispensable tool to the understanding and mastery of all phenomena, and not only of those in the relatively close field of the traditional natural sciences. The way in which we think, marshal our evidence and formulate our arguments in every field today is influenced by techniques first applied in science. The educated man, therefore, needs to be numerate as well as literate. Side by side with this need for understanding a new and essential approach to knowledge, the educated man also requires a general acquaintance with the directions in which science is most rapidly advancing and with the nature of the new knowledge that is being acquired. Neither the understanding of scientific method nor this general scientific knowledge is possible unless a sound foundation has been laid in the main school by thorough mathematical and scientific teaching. However able a boy may be, he cannot reach a Sixth Form level of numeracy except on the foundation of a Fifth Form level; but, if his numeracy

has stopped short at the usual Fifth Form level, he is in danger of relapsing into innumeracy. It is now one of the most important tasks of the Sixth Form to ensure that no boy or girl leaves school as innumerate as most have done in the past, and as far too many do even today. The boys' schools at least can no longer be criticised for providing an inadequate proportion of science specialists. The task that boys' no less than girls' schools have little more than begun is that of seeing that the Sixth Former who is not going to be a scientist or a technologist is given enough understanding of the scientific side of human knowledge to be able to hold his or her own in an increasingly scientific and technological world. By whatever means this problem is tackled in the schools, it will make heavy demands on really good teachers. But we believe that it must be done, and that the fruits will amply repay the labour." [Crowther report, 1959, pp. 269 - 271]

If the comparisons of section 4.2 are accepted (page 149), then this work would fall totally or partly in undergraduate days in South Africa and in America. At the risk of repetition, it should be emphasized that the standard of literacy envisaged demands maturity enough to comprehend the ideas and concepts of politics and science, and the ability to follow a chain of reasoning and to detect fallacies in it, not only verbal fallacies, but also statistical fallacies. Scientific methodology must be understood, and the foundations of social and moral judgment must be laid -- and they are not unrelated.

In a chapter on 'Communication' therefore, it is right that stress should be laid, not only on 'communication' in the language of words, but on 'communication' in the language of mathematics. An educated man will also understand something of what composers and artists are trying to communicate in music and the arts.

5.4. AMERICAN PROGRAMS.

5.41. "General education in school and college."

Sound thinking, and therefore competence in one's native language is an indispensable instrument of

learning, without which liberal education must be curtailed, say the authors of this book. [Aelhpy, 1952, pp. 40 - 47] "For his own sake and for the sake of the democracy of which he is a part, the individual must be able to distinguish in some measure between the false coin and the true in the talk and writing to which mass media of communication now subject us all."

Where does the responsibility lie for developing such knowledge and habits? The ability to organize and express ideas is a function of the total growth of the mind, and is a joint and continuing responsibility of the school and of the college. Nevertheless a sound foundation can and must be given in the schools, and without this 'higher education in America cannot do its proper work'. The Department of English has special responsibility for deliberately and consciously helping to promote the transfer of clear thinking in English to other fields. 'One of the few clear facts about the unclear and much disputed question of the transfer of powers from one subject to another is that it will tend not to take place unless it is deliberately planned for and worked for.' [Harvard report, 1945, p. 74] But language must not be relegated solely to a single department of English. 'Every teacher in English is a teacher of English'. [HMSO, 1957, p. 3] The authors of Columbia's A college program in action maintain that "the root of all student failures in the adequate use of language is what seems to us a long standing error -- the separation almost a century ago of instruction in writing in the American colleges from the general instruction. This separation was perhaps an economy and a convenience, but its effect over the years has been to place all responsibility for sound writing upon a single department, which by the very acceptance of that responsibility lost its power to enforce its discipline upon the written work of any and every other field. The traditional training in command of one's own language as the vehicle of all communication and discussion was replaced by the 'teaching' of the language as a 'subject', generally with a false and usually unrealized literary aim. The final consequence has been the all but complete disregard of a student's written performance in any courses but those in

composition, on the specious ground that his responsibility in other courses was only for 'matter', and that the instructor's criticism of writing as writing was an unnecessary if not intrusive niceness ..... The separation of composition from general instruction has never worked."[1]

The authors of General education in school and college go on to ask: what knowledge of language and what language habits are necessary to read, speak, and write well, and to think clearly in words? Grammar: "Training in the structure of the sentence should be continuous and solid, with the fundamentals firmly implanted in the primary school." Language: The student "will of course be shown how to find the plain literal sense of what he reads, to dig out information, to follow the thread of an argument, to see the relationship between main and subordinate ideas. But at an early stage he should be shown how to get meaning, not from the dictionary alone but from total context, and gradually learn how tone, mood, and attitude affect meaning and how to handle abstractions, symbols, figurative language, irony, satire, and fantasy, all of which, without experience, baffle the literal minded. Throughout his development he should get practice in distinguishing language used primarily to convey information or to explain neutrally, and language whose chief function is to express and arouse attitudes and emotions. He should acquire a deeply-ingrained habit of separating fact from inference, judgment, and opinion, a skill which too few adults possess." Logic: "Semantic difficulties are a main source of misunderstanding, confusion, and crooked thinking. An even more obvious obstacle to straight thinking is the student's inability to handle the elements of inductive and deductive thinking: that is, how to use and evaluate evidence, how to recognize what follows logically from what, and how to detect and avoid the most common types of fallacies in reasoning. Every good teacher in every field gives such training in elementary logic, although

1. Columbia does just this today, 1963. English C1001-C1002 (previously A1-A2) are required courses. Admittedly, "instructors in all departments expect clear and accurate English, and a precise knowledge of words, usage, and grammar." (Underlining added). [Columbia, 1962, July, p. 27]

usually not in systematic fashion." Composition: Students must be encouraged to reach their own best level by giving them subjects of genuine interest, where they have something to say, with as much staff discussion as possible, and discussion in class of good and bad examples. Probably in no other craft is there so little agreement concerning approved techniques of instruction, and so much agreement that standards are poor. Speech: Since this is of small concern in college, schools neglect training in speech. The separation of speaking and writing "lies in the realm of the social and the psychological, in the development of the total personality, which is of great concern to general education. Without the confidence to express himself or to 'think on his feet' -- if not on the platform at least in group discussion -- a student is greatly handicapped."

With regard to mathematics [Aelhpy, 1953, pp. 52 - 57] the following comments are made: "No subject is more properly a part of secondary education than mathematics. None has a more distinguished history or a finer tradition of teaching. Perhaps the very excellence of the topic has helped, in recent decades, to keep the content and order of its teaching largely unexamined." School and college teachers were strongly of opinion that school offerings in mathematics are ready for drastic alteration and improvement. (This is well in hand in 1963 under SMSG -- the School Mathematics Study Group). "Each branch of mathematics operates under a law of rapidly diminishing returns. Once the basic notions are solidly understood ..... we think it is unwise to linger in loving elaboration of a set of ideas grown familiar ..... There is excess fat on the body mathematical." Much can be squeezed out in geometry, algebra, and trigonometry. Budding engineers and scientists need an introduction to the calculus, and it can be presented simply. Some persons consulted by the committee thought some aspects of statistics even more important: the notions of probability, correlation, and sampling. "It is well for the student to learn both that mathematics has uncertainty and that uncertainty can be mathematically treated."

5.42. "Communication in general education."

This book edited by Shoemaker and Forsdale [1960] is a standard work on this subject. It may be compared with a book of the same title published in 1949. Both appear in two series edited by McGrath. Shoemaker and Forsdale in their preface [p. xii] note that in 1949 the term 'communication', as applied to the teaching of English, had been in common usage for a scant five years, but by 1948 it was being used by approximately two hundred colleges and universities. (It is coming slowly into use in Britain.[1]) Part I contains five essays: one by Lennox Grey, who examines the troublesome question of how students learn to write; one by Marshall McLuhan, who deals with the grammars of the newer media of radio, TV, and film; one by Father Fogarty, who examines the newer rhetorics of Richards and Burke and finds remarkable parallels in rhetoric and communication; one by Monroe Beardsley who explores emerging approaches to logic with their concerns for patterns for interpretation and explanation as well as proof; and one by Freeman Twadell who describes the very grammar of English. Part II discusses the communication programs of eighteen colleges. Professor Robert C. Pooley, Professor of English and chairman of the Department of Integrated Studies of the University of Wisconsin is a leader in the field of general education. He summarizes Communication in general education, [1960], in these words: "This sampling is admittedly small, but it represents institutions definitely committed to general education programs, and it includes a wide variety of types of institutions: six universities, four liberal arts colleges, four technical colleges, two government academies, one teachers' college, and one junior college. A few institutions offer differing types of courses in two semesters of the freshman year. The total of

---

1. ..... almost apologetically! "Communication is one of the new jargon words in technical education. Like all jargon words, new ideas and gimmicks, it excites contempt and adulation. To some it offers the panacea to all our problems -- to others it merely confuses the issue by disguising an old process under a new title and by offering the chance to specialist empire-builders with their own esoteric jargons and special demands on already overloaded curricula." [MacOwan, 1962, p. 10]

communication courses is therefore twenty in the eighteen institutions. Of these twenty courses, then, eleven are patterned on an integration of writing with reading content, ten of them combined with literature of varying kinds and amounts, and one with history. Four courses are constructed on an integration of writing with knowledge about the English language; the psychology of communication, the nature of language, the structure of language. Three courses attempt the integration of the language arts skills: writing, reading, speaking, listening. One institution offers writing and speech in separate courses, and one course centers on writing skills only, with grammar, both traditional and structural."

"The conclusion to be drawn cautiously from these insufficient data is that the ideal of the truly integrated communication course, particularly that combining speaking and writing, is largely abandoned in favor of a more traditional pattern of writing based upon and integrated with reading. A random sampling of some thirty-six catalogs confirms this conclusion; among those sampled none use the term 'communication', and only three specifically mention speaking as part of the course. While these meager samplings do not constitute convincing evidence, they seem to me to indicate a conformity to orthodox patterns not characteristic of communications courses in general education even a decade ago." [Pooley, 1962, pp. 160, 161] In his 'platform for the sixties' he pleads first for a reawakening of the spirit of experimentation and variety of approach in general education. His article was read before the Conference on General Education held in East Lansing in November, 1961, which resulted in the formation of the Association for General and Liberal Studies. "It is my optimistic hope that this conference" he said, "marks the renaissance of experimental enthusiasm in all aspects of general education, and particularly in those courses concerned with the use of language."

Next he says: "Let us individualize to the utmost extent the writing experiences of every student. The genius of American productive skill has created what we call mass production ..... Some of our largest courses, freshman English among them, promise our

students the anonymity of a cylinder head in a General Motors production line ..... We waste the time of a large portion of our freshman students in communications and composition courses by attempting to teach collectively what is essentially an individual art."

He shows that better instruments are needed for the selection and placement of students in communications courses. The difficulty of measuring ability in the communicative arts should be an added challenge rather than a discouragement.

He believes that some knowledge of the history, structure, and social uses of the English language is an essential part of the general education of every student. This linguistic approach should be provided at least in some courses.

Students who do not have basic reading competence on entering college should be given help. All should know that reading techniques can be considerably improved in practically all individual cases.

Finally he discusses programmed study books and teaching machines, and the problems of obtaining teaching staff. [Ibid., pp. 161 - 168]

5.5. A WARNING.

"The most important thing about any form of communication is what is communicated. The most important thing about what is communicated is its valuation in the currency of Socrates' coin. The utilitarian skills and techniques of each generation are soon outmoded. The search for wisdom and virtue never is. Not all the technological triumphs of history have satisfied man's need for these, nor displaced or even approached them as the most inspiring and fruitful of all subjects of human conversation. We must manage to present this subject to our undergraduates in such a way as will inspire them to help revive conversation in this tongue-tied democracy that has such good ideas yet cannot speak its own mind."

This is the conclusion of an essay with the title: 'On conversation', by Griswold. Earlier he had elaborated this serious thought in not-so-serious language. "The demand of society for the immediate

and the utilitarian is unremitting ..... Education can always cash in on this demand. I sometimes ask myself what might have happened if [Yale] had started cashing in on it when it was first felt. Let us take the timely case of television. It is said to be revolutionizing American life and we are urged to introduce courses in it in our curriculum. There have been several such inventions that were thought by contemporaries to be revolutionary agents of change in American life. The first was the telegraph, whose inventor and his associates, as I recall it, were so awe-struck by their handiwork that their first signaled message was 'What hath God wrought!' Next came the telephone, then movies, then radio, and finally TV. Each one of these inventions, speedily put into mass production and consumption, was fraught with no less revolutionary consequences for our society and accompanied by no less apocalyptic prophecies than those which accompany television today."

"Suppose, in view of this, Yale had added courses in the techniques and uses of each to its liberal arts curriculum. I can imagine an entering freshman with the course of study catalogue in his hand. He finds courses in telegraphy, telephony, cinematography, radiotelegraphy and telephony, and -- words fail me to describe the science of television. Then come the influence courses, the influence of the telegraph on the telephone, the influence of the telephone on radio, the influence of radio on the movies, and so on. Then the influence of influence courses, e.g. the influence of radio and telephonic techniques on communication and its impact on the American family. The freshman reads on in despair. He is looking for a course in English. He can't find one. He goes to the Dean. 'English?' says the Dean. 'Oh we don't bother with that any more. We have developed more effective means of communication'." [Griswold, 1959, pp. 79, 80, 81]

Griswold naturally has no intention of ridiculing liberal education, and in a residential university such as Yale the education of student by student through conversation is all-important. "We ..... have to ensure our students a proper subject of conversation. Fortunately we have this ..... ready to hand in our

liberal arts curriculum." [Ibid., p. 79]

Education of student by student, and education of student by teacher, must follow the education of the student by the great thinkers of all time. Communication is more than reading skills measured in words per minute. To commune with books is to stretch the mind, and this is one of the purposes to which general education should be put into a man's leisure hours, a subject on which the views of Griswold are given once again below.

Here follow the concluding paragraphs of his address "On reading", to a group of representatives of the book-world. "'Reading', in Bacon's aphorism, 'maketh a full man, conference a ready man, and writing an exact man'. What are we doing under our forest of television masts, with our indispensable artisans the ghost writers, our analysts, opinion samplers, and committees of brainpickers? We are succumbing one by one to technological illiteracy. We have traded in the mind's eye for the eye's mind. We are conferring. We have not quite given up reading. Here and there, in a few homes, in a few educational institutions, it still hangs on in competition with more efficient methods and processes, such as the extrasensory and the audiovisual. A few teachers still prefer written essays to intellectual bingo games that can be scored by electricity. A few students still like to read, a few statesmen, I suppose, still carry books with them when they travel. I am still reading in bed, and you who write and publish the books I read are still earning a modest competence."

"But what if present trends continue? Since reading maketh us full men, when we stop reading we shall be empty men. Since men who do not read have no use for writing, and in any case empty men have nothing to write about, we shall stop writing. We shall then be empty and inexact, though presumably we shall still be able to confer and conference will still make us ready. Ready for what? For some technological deus ex machina to finish the plot we have forgotten how to write? For some graduate of the school for ghost writers to whisper to us from the prompter's box?"

"They will not serve us. They cannot promote the more general diffusion of knowledge essential to a democratic society because they are mere transmitters; they cannot inform the statesmen to whom that society must look for the preservation and renewal of its charters because they are themselves uninformed. During the past century the average working week of our industrial and white collar workers has shrunk from seventy to less than forty hours. The millions of man hours thus conserved form the new Colossus. This Colossus has more leisure at his disposal than all the aristocracies of history, all the patrons of art, all the captains of industry and kings of enterprise. What will he do with it? Will he read? Will he make himself a full man and an exact man, or will he be content to be merely a ready man -- a measure of muscle and a shout from the mob? The choice lies before him. Who will help him make it?"

"Fellow citizens of the world of books, as an academical superintendent I make common cause with you. I hope we will!" [Griswold, 1959, pp. 65, 66, 67]

See references to English programs or communication programs on pages 50 (Harvard), 64 (M.I.T.), 73 (Yale), 81 (Columbia), 143 (Chicago), 144 (Michigan State), 314 (Engineering), 328 (Law), 335 and 336 (Medicine), and 348 (Business).

CHAPTER 6.

SIMILARITIES AND DIFFERENCES IN GENERAL EDUCATION IN THE UNITED STATES OF AMERICA.

Chapters 2 and 3 emphasized the similarities of general education programs. In all of the institutions described, there is an insistence that students should study formally certain subject-matter aspects from the humanities, the social sciences and the natural sciences, and always, in the foreground or in the background, there is insistence on the ability to use English well. The purposes behind this practice are outlined in chapters 1 and 9.

These purposes are approved in varying degree in the United States and in Britain, and it has been noted that the effects of this approval on undergraduate and sixth form curricula in the two countries are strangely different. A thorough analysis of this phenomenon could well be the subject of a full and separate study.

There is however great variation in the practice of general education in America itself, so much so that a severe criticism can be made by its opponents "that general education is really a meaningless term since people define it in almost anyway their fancies dictate." Mayhew [1960b, p. 9] goes on to point out that it has different meanings in the University College of Michigan State University and in the General College of the University of Minnesota. Indeed it has two different meanings within the University of Minnesota -- on the one hand in the General College, and on the other hand in the College of Science, Literature, and the Arts. Michigan State University and the University of Minnesota are both state universities, relatively near to each other geographically, about the same in size, and similar in undergraduate functions.

6.1. THE UNIVERSITY OF MINNESOTA.

6.11. The General College.

"The General College of the University of

Minnesota has been an object of interest and curiosity in the academic world almost from the day it opened its doors to its first students. What is it about the college that has attracted a steady flow of educators from all over the United States and Europe and, more recently, from Asia, to observe this educational experiment in operation? Has it been a unique student body? Has it been an unusual program? Or, has it been unorthodox teaching methods and techniques?" [Mayhew, 1960, p. 130]

Here the purposes of general education are explicitly stated not in terms of subject matter content to be mastered, but in terms of major objectives. A sound general education should enable a student to

> deepen his sense of personal integrity;
> adjust to changing conditions of living;
> develop the ability to think critically and constructively;
> participate in civic affairs as an active and informed citizen;
> appreciate cultural activities as a means to richer living;
> understand our natural environment and the effect of science on human welfare;
> promote healthful living;
> prepare intelligently for a satisfying family life;
> grasp and express ideas effectively;
> discover an appropriate and satisfying life work.
>
> [Minnesota, 1961-1963, p. 6]

These ten major objectives are obviously based on those listed in Higher education for American democracy, a report of the President's Commission on higher education. [President's Commission, 1947, vol. I, pp. 47 - 65] This discussion on general education was one of the first to list authoritatively the objectives of general education, and is widely acclaimed for its clarity and brevity.

These objectives are elaborated in General education for personal maturity, by Horace T. Morse, Dean of the General College at the University of Minnesota, and Paul L. Dressel, Director of Education Services at Michigan State University. [Morse, 1960] The objectives are worked out in a very thorough-going fashion in the curriculum of the General College. [Minnesota G.C., 1961-1963]

"The General College at the University of

Minnesota is designed to meet the needs of students who are not likely to remain in college more than one or two years. The only requirement for admission to the General College is graduation from high school. Admission to other schools and colleges of the university is more selective." [Mayhew, 1960b, pp. 38, 39] "The admissions policy of the University of Minnesota always has sought to provide an opportunity for any graduate of an accredited Minnesota high school to enter the University. However, after the creation of the General College, students of lesser academic ability were afforded there a program especially geared to their ability level and needs. Inevitably, the vast majority of its students soon came to be of lower academic ability, until today approximately two-thirds of its student body are from the lower one-third of all entering freshmen at the University ..... While the academic ability of these students is well below that of the average four year graduate, it is only slightly lower than that of the average junior college student, and is somewhat above the average of the overall population." [Mayhew, 1960, pp. 131, 132]

McConnell [1962, pp. 97, 98] quotes the following figures for average high school percentile ranks: Institute of Technology - 74 (men); College of Science, Literature, and the Arts - 69 (men), 82 (women); General College - 28 (men), 35 (women). "It is apparent that the University of Minnesota has enabled its four-year divisions to administer high standards of admission by creating a two-year college within the general university organization which less able students may enter".

About one-quarter of General College students complete a four-year Bachelor's degree course. About 1000 to 1200 freshmen were enrolled per year, said Dean Morse[pc] in 1960, and teaching is thus directed at the 750 to 800 terminal students rather than to the remaining transfer students. (The University as a whole enrols about 8,000 freshmen per year).

It is difficult to plan sequences in the General College, because students may stay only one year, or even only one quarter. One-third of the entering class of 1958 dropped out by the end of the year, said

Dean Morse[pc], but this figure is not very meaningful as students may return, having left not because of academic weakness, but for other reasons such as financial problems or marriage.

The General College was a pioneer from 1932 in the field of general education, and does very well what it sets out to do. It is, says Dean Morse, an experiment in 'the conservation of human resources'. For one reason or another, throughout America, less than half of the students who enter liberal arts colleges finish the senior year. The courses such students have studied are often fragmentary and unrelated -- unrelated to one another, and unrelated to the daily activities and problems of student and adult life --, because they take courses designed as a foundation for more specialized and advanced courses. Furthermore numerous students of employment requirements indicate that there are many occupations for which one or two years of education beyond high school are sufficient preparation. Sometimes employers look first to a good general education, and secondly only to specific skills. "It is estimated that in many fields of work there are five jobs requiring two years of college preparation for every one that requires four years." [President's Commission, 1947, vol. I, p. 69]

The College has an effective system of advising and counselling which results in a selection of courses 'tailor-made' for the individual student. Each student in consultation with his adviser selects his own courses to meet his special needs and interests. Courses are as complete as possible in themselves. Relationships within and among fields of knowledge are emphasized, rather than stress upon intensive study of small, isolated segments. Some of the courses are organized in terms of life activities to help meet the numerous problems they will encounter as citizens, workers, members of a family, and individuals seeking a rational and balanced personal and social philosophy. Contemporary problems and interests are stressed. A number of different educational fields or vocational aims can be explored in a hundred different courses. The college aims to prepare students for semi-professional or technician types of employment. This

training, in turn, is integrated with a broad, general education.

General College courses are grouped into seven areas: I - Psychology, philosophy, and personal development, with an integrating course entitled 'Psychology in modern society'; II - Home life studies, with an integrating course entitled 'Home life: marriage and family living'; III - Social studies, with two integrating courses entitled 'Problems of contemporary society' and 'Man in society'; IV - General arts, with an integrating course of the same name; V - Literature, writing and speech; VI - Biological science; VII - Physical science and mathematics. Most are one-quarter courses, but a few are planned as two- and three-quarter courses. Two examples of the first four groups are given, one 'more academic' and one 'less academic'. I - 'Functions and problems of philosophy', 'Leisure today'; II - 'Psychology of human development', 'Problems of business transactions'; III - 'Growth of American democracy', 'Problems of finance and credit'; IV - 'Music today', 'Selecting and furnishing a home'.

"A comprehensive examination covering the seven comprehensive areas is given to each student three times during his two years of residence. The first is given when the student enters the college; the second after he has completed three quarters of work; and the third after he has completed the minimal 90 credit hours which are required for the degree of Associate in Arts. The function of the first two is primarily diagnostic, although students who attain a specified percentile ranking on the second examination may, if they wish, transfer to other colleges of the university providing they can meet the normal prerequisites. The results of the first and second comprehensive examinations are used by faculty advisers to help students to plan courses of study that will overcome weaknesses and at the same time guide them in the direction of useful vocational preparation. The students must pass the examinations in five of the seven areas to qualify for the Associate in Arts degree." [Thomas, 1962, pp. 196, 197]

Certainly most of these courses would not find a place in a British or South African University. In

an 'Applied mathematics' class students were seen to struggle to

$$\text{find } m, \text{ given } m = m_o \div \left(1 - \frac{v^2}{c^2}\right)^{\frac{1}{2}}, \; m_o = 9 \times 10^{-28},$$

$$c = 3 \times 10^{10}, \; v = 4.0 \times 10^{8}, \text{ or } v = 1.5 \times 10^{10}.$$

Some struggled to find the square root of 0.75. These are questions which should be solved in a South African standard VIII class, over two years before matriculation. The teaching staff of about 70, including about 20 Ph.D's, consisted of 4 full professors, 8 associate professors, about 20 assistant professors, and about 40 instructors (to assess the staff in the customary American university currency).

Comparable students in South Africa are mostly in part-time attendance only; or if they have managed to obtain entrance to a university and failed, then their time has in most cases been so wasted that they prefer to hide the fact that they did attend a university at all.

It must be remembered that the General College does not prepare students, save indirectly, for a Bachelor's degree. The two year course leads to an Associate in Arts degree, as noted above. In the College of Science, Literature, and the Arts also, however, students may obtain the degree of Associate in Liberal Arts after two years.

Reference has been made on page 79 to the contents of General education for personal maturity, and particularly to the 'Personal living course' at Columbia College. [ch. 2] This book includes a description of the 'Marriage education' course at the University of California at Berkeley. Between 1938 and 1948, it was a non-credit course, but since 1950 it has been a credit course. [ch. 9] Full descriptions are given of the General College program in 'Home life, marriage and family living' [ch. 7], and in 'Vocational planning' [ch. 17].

The final chapter [ch. 18] is entitled 'A balance sheet', and it is contributed by Dean Morse. Many university teachers believe that the responsibility for the personal adjustment of students, for their preparation for family living, and for their making a

suitable vocational choice should be left to the home, the church, and other social agencies. The human costs are however too great for these adjustments to be left to chance or to casual accomplishment. The impacts of industrialization and urban living, and the distractions of commercialized entertainment and mass media of communication have handicapped the home and the church.

Is this 'coddling'? Should students be left to learn from their mistakes? Should post-school education be solely intellectual? It has been noted that the President's Commission on higher education [1947] listed objectives similar to those of the General College. Its courses are meaningful to the student, functional in his daily living, integrated not fragmented, and they unify his personal experiences. These courses must be supplemented by individual counselling. Most universities provide at least the opportunity for individual counselling. One study quoted by Stone [Morse, 1960, p. 236] shows that adjustment courses are more effective when course work is coupled with individual counselling, than by course work alone or by counselling alone.

In conclusion, Morse asks whether there is not danger in the concentration of effort on individual adjustment that individual initiative may be lost sight of and smothered? Is there too great a tendency to 'seek security', to 'conform to the group', indeed to 'group-think' in order to make a decision? Do such courses not produce types instead of unique persons, types depending on a 'hive psychology'? Howard Mumford Jones says: "Under the old, free, elective system, when a youth went off to college, he ..... cut the leading strings ..... Today we do not cut the strings; we lengthen them ..... It is true to say that an entire battery of adjusters is happily at work to see that his mistakes will never, never harm him." [Morse, 1960, pp. 226, 227]

Is Howard Mumford Jones right? Morse thinks not. "Our aim is the development of an adjusting individual rather than the adjusted one ..... Teachers of adjustment courses and others most familiar with their operation and intent would sincerely and stoutly deny

that their effect is to engender mediocrity and standardization of thinking and behavior. They would certainly maintain that quite the opposite is the case, in that the learning to make desirable and appropriate adjustments is an individual matter, and that successful accomplishment actually enables the student to develop his own individuality to the fullest. These faculty members are constantly alert in their efforts to achieve the objectives of democratic living to guard against the promoting of equality at the expense of freedom, where freedom means the nurture of individual excellence."

6.12. The College of Science, Literature, and the Arts.

The College is divided into an Upper Division and a Lower Division. It is the function of the Lower Division to provide general education, and students will then specialize in the Upper Division or in one of the other Colleges of the University. Subjects are divided into six groups: A - Freshman English, B - Foreign language, C - Social Science, D - Natural Science, E - Humanities, F - Health. No one course is required of all students. The number of subjects from which choices may be made -- in consultation with a faculty adviser -- is large.

"One of the departments of the College is the department of inter-disciplinary studies, and so far as I know it has no parallel in any other college", says Russell Thomas. [1960, p. 191] They are devised for students who will not specialize in the academic area concerned. There are six such programs: communication, family life, humanities, natural science, personal orientation, social science. [Minnesota, SLA, 1959 - 1961, pp. 79 - 83]

There is no intention in this section of describing fully the general education program of the College of Science, Literature, and the Arts. The purpose of these three paragraphs is to show that within one institution, two programs of general education aimed at students of different levels of ability, can be provided, and they are radically different in the principles which dominate the

organization of subject matter. The College of Science, Literature, and the Arts (7082) and the General College (2241) together enrol about one-half of the undergraduates of the University, and most of those in other Colleges such as Agriculture, Business, Education, or Engineering will have spent all or part of their first two years in one of these two Colleges.[1]

6.13. The University of Minnesota and Michigan State University.

No single course is required in these two Minnesota Colleges. In the University College of MSU, on the other hand, all students take the same core courses. Yet these two programs have both been stoutly defended by their respective administrations as important experiments in general education.

Thomas makes these comparisons forcefully. He also points out that the phenomenon of the state university which enrols from ten to fifteen thousand undergraduate students has created unique problems, particularly those relating to the provision of general education for students inevitably with considerable heterogeneity of aptitudes, academic backgrounds, and intellectual interests. Private universities which have greater freedom to select students, and can be and are forced to be exclusive, do not face such problems. State and municipal universities will enrol more students than private universities, and the influences of universities such as Minnesota and Michigan State will be nation-wide, particularly with respect to general and liberal education. [Thomas, 1962, pp. 184 - 199]

It is important to realize that the fastest growing aspect of higher education in America is the junior college movement.[2] As has already been noted, such colleges 'have made relatively little progress in

1. The total enrolment on the Minneapolis-St. Paul campuses in 1958-1959 was 24,267.
2. By 1959, 22% of the first-time and 12% of the total enrolment in all higher institutions, was in the junior colleges. California, New York, Illinois and Florida are all expanding their junior college facilities. Ohio and Indiana oppose the movement. [McConnell, 1962, pp. 123 - 135] Conant has proposed that universities, instead of growing in enrolment, should aim at a different distribution of aptitudes and interests, -- in other words, at sending a higher percentage of high school graduates to junior colleges. [Conant, 1956, pp. 70 - 73]

developing well-organized curricula for general education. [Medsker, 1960, p. 62] Large universities may in due course face shrinking enrolments in the first two years, because those of junior colleges are expanding. Within a few years the majority of university graduates in many states will have received their first two years of college at some other institution. The General College of the University of Minnesota with over thirty years of experience provides an example nationally, and indeed internationally as other countries begin to take increasing note of American junior colleges.

6.2. FOUR NEW CAMPUSES.

It is noteworthy that there is above average emphasis on general education on four new campuses. References in recent pages to Michigan State University lead to an interest in the curriculum of its newest College at Oakland.

6.21. Michigan State University, Oakland.

A magnificent gift by Mr. and Mrs. Alfred G. Wilson (she was the widow of John Dodge) enabled Michigan State University to open a new campus in Oakland County in September, 1959, between Pontiac and Rochester, 25 miles north of Detroit. Within a 15-mile radius were 1,000,000 people with no college, and more than 50,000 college-age youths. MSU may have an enrolment of 44,000 by 1970, and MSU-O may cater for 10,000 of them.

"The MSU-O Foundation included labor leaders, automobile and other corporate executives and educators. It set out to make the most of its one-in-a-generation opportunity to make a fresh start, to incorporate the best and most promising ideas into a new kind of college, free from the traditions that fetter existing ones. Seeking the best counsel it could find, it brought together for a series of seminars 40 of the nations leading citizens and educators -- men and women of great competence in business, the professions, and the liberal arts." [Pope, 1959] They included George L. Bach, Sarah G. Blanding,

Samuel M. Brownell, Henry Steele Commager, Lee A. DuBridge, Milton S. Eisenhower, Henry T. Heald, Henry Luce, Francis Keppel, Ernest O. Melby, Frank C. Pierson and C. Richard Soderberg."

"They were asked this question: 'Given a clean slate, how would you build the ideal university for our age?' They were then divided into panels to write guidelines for four courses of study: liberal arts, engineering science, teacher education, and business administration. To encourage complete freedom of expression, they were given the protection of anonymity. No notes or votes were taken."

"The panelists agreed emphatically that it should be a liberal arts institution of the highest quality and that to be different it must have autonomy. (Chancellor Varner reports to a Board of Trustees through President Hannah.) Their findings anticipated those of the studies[1] mentioned and were a repudiation of much in higher education. University curricula, they said, were too complex, specialized, and vocationalized. Faculties have too often forgotten that their purpose is not necessarily 'to teach' but to help students learn. Any true university must acquaint students with the world community, especially with non-Western cultures, and produce men of broad understandings and high principles."

"The deans of five top engineering schools, for example, declared that engineering education today is obsolete. It is concerned more with changing know-how than fundamental knowledge. The business administration panel even raised some question about the advisability of such a curriculum at all."

"These panels said the need for managerial personnel was increasingly acute, but that such men were not being produced by the standard courses in these fields. They said men were needed who have perspectives widened by familiarity with the liberal arts and with major social and political issues. Such men will be capable of creative concepts or of handling large projects and ideas; industry can give them the specialized training on the job." [Ibid.]

MSU-O offers undergraduate programs in all major disciplines of the liberal arts and sciences, and

---

1. The McGrath series in particular.

preparation in three professional areas: business administration, engineering science, and teacher education.

It was decided in 1959 that about half of all curricula should be in liberal studies. The freshman bulletin for 1962-1963 and 1963-1964 [MSU-O, 1962] shows that this pattern has been maintained. MSU-O is unusual in working on a three 'semester' basis[1] (45 weeks per year), enabling students to graduate in two and two-thirds years instead of three and three-quarters. The 'university courses' are compulsory for all students throughout the eight 'semesters'. They include English language and literature, history, music, art history, philosophy, social science, foreign language, non-Western cultures, and mathematics and science.

Enrolment has grown from 570, and in spite of a large fall-away in this first freshman class, numbers total about 1,400 in the 1962-63 year.

6.22. Monteith College in Wayne State University, Detroit, Michigan.

Monteith College was created on 22nd December, 1958, by Dr. Clarence B. Hilbery, President of Wayne State University. It was generously supported financially by the Fund for the Advancement of Education, because, in the words of Dr. Clarence H. Faust, Vice-President of the Ford Foundation, Monteith College 'will appear on the American educational scene at a time when the testing of new concepts and methods to improve the quality and management of higher education is of profound national importance'. [Monteith, 1959, p. 1]

Monteith is one of the few colleges which uses the term 'general, liberal education': general, to complement specialized or professional education; and liberal, because it is concerned 'with the large and important ideas in Western culture, the ideals which free the mind and spirit of the individual'. [Monteith, 1962/63, p. 9] This college like Oakland, provides a program nearly half of which is in general liberal

---

1. See A new trimester three-year degree program by Hungate and McGrath. [Hungate, 1963] See page 371.

education. Unlike Oakland, it is likely to remain relatively small in numbers, with freshmen classes of about 300. It is not intended to serve only the ablest students, but this may well happen. It is geographically within Wayne State University. Students are selected so that about the same number either follow the general curriculum, or go on to one of the five professional schools -- business administration, engineering, law, medicine, and education -- after 2, 3 or 4 years in Monteith: after 4 for medicine; and after 3, preferably 4, for law.

All students take the same basic course sequences, and all follow the program below in the twelve quarters of the four years.

Year: 1st	2nd	3rd	4th
S S S	S S/H	H H H	H/C C
N N N	N N N	X X X	E E E
X X X	X X X	X X X	X X X
X X X	X X X	X X X	X X X

S means 'Science of society'; H means 'Humanistic studies'; N means 'Natural science'; C means 'Senior colloquium'; E means 'Senior essay'; and X indicates the remaining courses, required to complete the general curriculum with or without concentration, or required to meet pre-professional requirements. There are only 27 'quarter-courses' of non-common work in the total of 48. The provision of a 'Senior colloquium' for <u>all</u> students is unusual. Professors at many other colleges said[pc] that the lack of such a capstone was the weakest feature of their own programs. The'Senior colloquium' entails a period of independent study as far as possible. So too does the 'Senior essay', which is a culmination of basic work in one of the three main areas. Another unusual feature is that there is no traditional one-year English composition course. The teaching of correct writing is an integral part of all of the required courses. Written assignments are carefully evaluated on the basis of form as well as of content, and groups are small enough to enable instructors to make individual comment.

Full reports describing each of the basic courses are available from the College. 5 or 6 quarters are devoted to each, and a further 3 to a senior essay in one. One-half of the time of the senior colloquium

(2 quarters) is devoted to one area, and one-fourth each to the other two, but the purpose is to integrate the three areas. This is general education in luxury, without having to consider the handicap of time pressures. With 21 'quarter-courses' out of the 48 available, the work is done in a very thorough-going fashion.

The degree granted by Monteith is named Bachelor of Philosophy, one which has been out of fashion in America for 30 years or more. The name is however appropriate to a curriculum of this type.

Tact is necessary in asking questions as to why Monteith College was started, in view of the fact that the College of Liberal Arts has always made provision for general education. This consists of certain requirements in English and a foreign-language; and in the fields of the natural science and of the social sciences, in each of which a student may choose between certain electives. [Wayne, 1962/63, pp. 11 - 13] Tact does not necessarily elicit firm answers. It appeared[pc] that after one of the periodic occasions of introspection which are called 'self-study' in American universities, two schools of thought had emerged: one wanting a more thorough-going program of general education, spread over four years and common to all students, and the other satisfied with allowing election within certain fields, resulting, it appeared, in a rather amorphous collection of possibilities.

6.23. University of South Florida.

The University took in its first class in September, 1960. Florida is the fastest-growing[1] State in America, and further university facilities became necessary. The University has a campus of 1700 acres at Tampa. It was expected that 1500 or more freshmen would constitute the first class. It started with a College of Basic Studies, a College of Liberal Arts, a College of Business Administration, and a College of Education. Transfer is possible where necessary (e.g. for home economics and nursing)

---

1. 1960 population - 4,930,000: estimate 1970 - 7,631,000: gain 54.8%. The next is Arizona - 46.9%; then California - 37.6%. [U.S. News and World Report, 17th October, 1960]

after two years. After three years at the University of South Florida, and two at the University of Florida, students may qualify for a Bachelor of Arts degree, and a Bachelor of Science degree in Engineering.

The first publication of the University, volume 1, number 1, Accent on learning, stresses that a good college education has unity and balance. It takes pains to discourage applications from those who find no challenge in intellectual concerns, and from those concerned with 'job training'. It does aim to provide a broad fundamental preparation for careers. The University notes the strong trend shown by the McGrath studies for liberal arts colleges to include more professional preparation in their programs and for professional colleges to include more general and liberal studies in theirs, thus bringing both closer together in a continuum of studies, which includes the general, the liberal, and the professional in the same program. McGrath [1958, p. 15] is quoted with approval when he says: "The divorce of liberal and professional education has been an immense educational and social blunder. The separation has damaged both. The sooner they are rewed the fuller and more effective will be their services to American society." [South Florida, 1959, pp. 29 - 36]

All students entering the University as freshmen or sophomores are registered in the College of Basic Studies. About fifty to sixty per cent of the time of the first two years is devoted to courses required by the College of Basic Studies, and the balance to courses selected, with advice, in one or more of the other colleges. The required courses (6 out of 7) are functional English, functional foreign language, human behaviour - effective living and thinking, the American idea -- America and the world, natural science (a choice of biological science or physical science), mathematics, the humanities. In the senior year a 'capstone' course will relate upper division work to that of the first two years. "How, for example, do the methods of the natural scientist apply in the field of social science or in the humanities? How do the methods of the social scientist relate to the development of value judgments in the humanities? Are these three great

fields separate from one another or are they part of a continuum which begins on one end with the so-called exactness of science, moves through the less exact social sciences into the realm of value and moral judgments? How do these three fields and their methods relate to professional competence and understanding in such fields as law, science, medicine, ministry, education, and business?" [Ibid., pp. 80, 81] The College will offer upper level electives in 'Basic studies,' and it will offer a major in 'Basic studies' -- presumably similar to the Monteith 'general curriculum without concentration'. There is also a physical education requirement.

It is perhaps not surprising that the curriculum should emphasize general education to such a degree, since President J.S. Allen has among his colleagues such enthusiasts for general education as Sidney J. French (Dean of the College of Basic Studies), Russell M. Cooper (Dean of the College of Liberal Arts) and Lewis B. Mayhew (Director of the Office of Evaluation Services and Institutional Research).

6.24. Harvey Mudd College.

This College for science and engineering, is the youngest of the five Claremont colleges, thirty-five miles from Los Angeles. The first students were admitted in 1957. Majors are offered in engineering and in chemistry, mathematics and physics. The College was founded in the belief that a need exists for physical scientists and engineers with a broad enough background in the humanities and the social sciences to assume technical responsibility with a clear understanding of the relation of technology to the rest of society. One humanities and one social science course is taken each semester, chosen freely from the long list of such courses available in all of the Claremont colleges. In all, more than one-third of a student's time is spent in humanities and social science courses.

A course entitled 'Science and man's goals' is provided which may serve as a humanities credit, or as a social science credit. [Harvey Mudd, 1961-62]

As in the case of Oakland, leading educators from all over America spent some time (six weeks) in a

curriculum conference, with the support of the Fund for the Advancement of Education.

The Claremont campus may soon include a western outpost of Maryland's St. John's College.

6.3. THREE CALIFORNIA CAMPUSES.

6.31. The State of California.

The legal requirements in general education in California State Colleges are as follows.

To be eligible for the bachelor's degree from a state college, the candidate shall have completed a minimum of 45 units of general education. The courses in general education shall be distributed in the following manner:

(a) Social sciences - 9 semester units.

The social sciences shall include required instruction in U.S. history, 'Constitution and American ideals' and courses in the fields of anthropology, economics, geography, history, political science, sociology, and similar fields. Courses must be selected from two or more of these fields.

(b) Natural sciences - 9 semester units.

Natural sciences shall include the fields of astronomy, botany, chemistry, geology, physics, physiology, zoology, and similar fields. At least one course must be selected from a physical science and one from a life science.

(c) Literature, philosophy, or the arts - 6 semester units.

(Fine and practical arts not to exceed 3 of the 6 units).

(d) Health and physical education - 2 semester units.

Except that where a student states in writing that the course in health is contrary to his religious beliefs, he may be excused from such course and permitted to substitute a course in a field or fields specifically designated by the president of the college in lieu of the required health course.

(e) Oral and written expression - 3 semester units.

(f) Psychology - 2 semester units.

(g) Additional units in general education - 14 semester units.

These units shall be determined by each college and may be distributed in whole or in part among the foregoing six general areas, or may include one or more courses in family life education and mathematics. The college may make provision for the student to elect not over six semester units of this requirement in courses in foreign language. [California, 40405]

This applies to California's 15 state colleges, recently federated under an independent governing board with Dr. Buell G. Gallagher as the first chancellor. Public higher education in California includes also the University of California with 7 campuses, and 63 public junior colleges: these are October 1960 figures. The University of California will cater for the top one-eighth of students, or with the state colleges for the top one-third. Public junior state colleges will cater for the remaining two-thirds. [McConnell, 1962, p. 11]

6.32. The State College of San Francisco.

Thomas [1962, pp. 251 - 257] notes that this state requirement of a standard formula for the distribution of general courses 'invites speculation as to whether such bodies in other states may adopt similar procedures'. The distribution at the State College of San Francisco was as follows in 1958-59:

Psychology (personal, social and occupational development).	6 units.
Basic language skills.	6 units.
Social science (socio-civic competence).	12 units.
Natural science (including health education).	10 units.
Humanities (literature, philosophy, world cultures).	6 units.
Creative arts.	3 units.
Physical education.	2 units.

The same course or courses must be taken by all students to satisfy these requirements, except in physical education where some optional courses are offered. These requirements amount to one-third of the units for a baccalaureate degree.

"The administration and faculty have taken the commitment of the program very seriously. Aware of the fact that many students do not understand the reasons for so extensive a group of required courses, the

administration has prepared a pamphlet for students which anticipates and answers most of the questions that they might be expected to raise about the nature and purposes of general education. In addition to the annual conferences of the faculty, divisional conferences have been held which have studied the progress of the general course or courses in the respective areas. The college has created the office of curriculum coordinator. The job of the coordinator is to serve as a liaison agent between the several divisions of the program, and his office is a kind of clearinghouse in which problems that are common to all staffs are reviewed."

6.33. Stanford University.

At the time of a visit in 1955 considerable changes in the undergraduate curriculum were under discussion. Two major changes envisaged[pc] were (i) the arrangement of general education courses throughout the four undergraduate years instead of only in the first two; and (iia) the insistence on certain admission requirements which would ensure that the necessary minimum of English composition and literature, foreign language, and mathematics, shall have been completed in high school, together with (iib) allowing college credit for high school work beyond this minimum in the cases of particular students who show merit by means of advanced placement tests.

The general requirements are as follows:

1. Requirements for all students.
   English (composition and literature): one year.
   History of western civilization: one year.
   Foreign language or mathematics.
2. Area requirements for all students in the two areas (humanities, social sciences, and natural sciences) in which they do not major.
3. Requirements for all candidates for the Bachelor of Arts degree.
   Senior colloquium: two colloquiums - each one quarter.
   Additional natural science (or mathematics or logic).
   One course in mathematics, or logic, or statistics, or foreign language.

Thomas [1962, pp. 262 - 268] points out that the specification of two out of three areas (2 above) 'implies that in principle there is no distinction to be drawn within the area of concentration between the general and specialized aspects of one's education'.

Furthermore, this makes possible more work in each of the other two areas, than would be the case if there were requirements in each of three areas. This is especially important for science students, who may, in addition to English, have to obtain a reading knowledge of French or German, leaving little time for exploration of the humanities proper.

The course in 'History of western civilization' had been an all-university requirement for twenty-five years, and continues to be the one course nearly all students take: its popularity should therefore be noted. It is almost universally held in high regard, since 'it provides a common intellectual challenge and interest which spills over into innumerable discussions outside the classroom'. The value is often overlooked of the kind of course which is a common requirement for large numbers of students. "When the courses are well conceived and well taught, they often generate an intellectual excitement that spreads through the greater part of a student body. One of the frequent arguments against the uniform requirement of courses such as the History of Western Civilization and several others is that they produce a rigidity or conformity in thought. The reverse is more likely to be true when instruction is divided among a number of capable instructors who approach a common problem in different ways and, as a result, evoke a variety of answers to problems of value. Students accept the challenge, and there is ample evidence from the experience of a fair number of colleges that intellectual excitement does indeed spill over into discussions outside the classroom."

Students are expected to choose colloquiums outside their departments of concentration. Each is limited to fifteen students, and they are conducted as seminars. Thomas gives the following from the 1957-58 list as a fair sample:

Discovery, invention, and creation (electrical engineering).
Critique of Marxist classics (political science).
Plato's view of the ideal society (philosophy).
Science, values, and intellectualism (geo-chemistry).
Crime, guilt, responsibility: The Orestes myth from Aeschylus to Sartre (classics).
Nationalism and internationalism (Hoover Institute).
The existentialism of Alfred Camus (German-Romanic languages).

The main purpose of placing these colloquiums in the senior year is to encourage the student to think of his general education as a continuing part of his university experience.

"One additional all-university requirement must be included to complete the record -- one which is interesting because it is not customarily included in the general education requirements of college programs. This is participation 'in an organized activity to the total value of six non-credit units, no more than two such units to be allowed in any one quarter'. In addition to organized physical activities, students may include chorus, choir, orchestra, band, dramatic performances, and 'such other organized group activities as the Committee on General Studies may approve'. Physical education is included in the general education requirements of many colleges but it is exceptional to find other so-called 'extracurricular activities' so regarded."

There is a Committee on General Studies which supervises this program and keeps it in continuous review. "The principle underlying such a committee is that general education is a primary responsibility of the University at large and not of any department." A comprehensive handbook has been prepared for advisers, outlining procedures and requirements in all parts of the undergraduate program.

Stanford University is one of the best-known in America. Its emphasis on general education lends prestige to the movement. Its departures from average practice are significant.

6.34. California Institute of Technology.

Dr. Hallett D. Smith, Chairman of the Division of the Humanities, has written chapter 14 in [Fisher, 1960]. He starts by pointing out the rise in quality over recent years of Caltech students. The size of the entering class, he explains, has not increased, but the number of applicants has gone up sharply. The College Entrance Examination Board aptitude and achievement tests are the easiest measurements to use, and probably the most reliable, says Dr. Smith. The verbal aptitude score of all applicants to Caltech in 1954 was at the

73rd percentile on a nation-wide basis: in 1959 it was at the 90th percentile nationally. These scores are for all applicants -- 1000 in 1954 and 1484 in 1959. The average figure after the highly selective admissions process has taken place will be even higher since the optimum size of the freshman class is 180. The mean percentiles were: 1954 - 88, and 1959 - 97. The percentiles for the CEEB achievement tests in English were:

All applicants : 1954 - 59, and 1959 - 71
Freshman class : 1954 - 82, and 1959 - 88.[1]

It may appear that this point has been unduly laboured here and elsewhere in these pages. The purpose has been to provide a reply to those critics who imagine that the primary purpose of general education in America is to meet the 'deficiences' of high school graduating classes . McConnell [1962, pp. 40, 41] singles out Caltech and Amherst College in that they are homogeneous in student ability. By 'homogeneous' he evidently means 'highly selective'.

This improvement in the ability and pre-university achievement of freshmen has enabled Caltech to require a course in English which was of junior year standard in 1949.

About one-fourth of a student's time during his undergraduate years is devoted to the humanities, which are more broadly defined than usual: literature and composition, history and government, economics,

---

1. Life International provides the following figures for 1960 freshmen classes of the mean scholastic aptitude test (SAT) scores, verbal (V) and mathematical (M). Those institutions only are listed which appear in the Life tabulation, and which are referred to in these pages:

	Mean SAT	
	V	M
Amherst	638	673
Antioch	603	588
Chicago	635	637
Columbia	657	673
Princeton	641	675
Stanford	641e	635e
Yale	640	665

Four of the above are in the top bracket (645-675) of 11 colleges. Two are in the second bracket (615-645) of 11 colleges. One is in the third bracket (580-615) of 13 colleges. ('e' means 'estimated').

philosophy, and psychology. Indeed, with minor exceptions a student does not even concentrate in his chosen field until the fourth year. Caltech insists on elective subjects in the humanities during the fifth year for students proceeding to the degree of Master of Science. "This is, in fact, the type of collegiate education endorsed by leading engineers -- a training which avoids technical narrowness on the one hand and broad superficiality on the other ..... The science course includes the same proportion of cultural studies as the engineering course, and for the same reason -- to enlarge the student's mental horizon beyond the limits of his immediate professional interest and thus better qualify him to realize his opportunities and fulfill his responsibilities as a citizen and a member of his community." [Caltech, 1960-1961, pp. 90, 91]

All first year students take English, 'History of European civilization', and physical education; all second years take 'History and government of the United States'; all third years take 'Advanced literature', and most take 'Economic principles and problems'; all fourth years take 'Public affairs', and electives in the humanities which may be chosen from a wide list. [Caltech, 1962]

Further points made by Dr. Hallett Smith follow. "The Humanities Division of the California Institute offers no courses called 'humanities' in which literature, history, philosophy and the fine arts are combined. But there are certain bridges between the various liberal disciplines. Twice a year freshmen write papers which are submitted in both their English and history courses. More significantly, courses have been placed in the curriculum which are taught jointly by professors from different fields: a course in 'The political novel', taught by a political scientist and an English professor; a course in 'Modern America' taught by an economist and a historian; a course in 'Current world affairs', required of all seniors, taught by specialists from various areas. The planning and teaching of the American history course required of all sophomores is done by a political scientist, a professor of American literature, a historian of ideas, and an American historian."

"There has been no expansion of the 25 per cent of the student's curriculum which must be spent in the humanities, and none is visualized. Very considerable improvements have been made in the way that amount of time is utilized, not only by acceleration of able students and enlargement of the horizon of subject matter, but also by concentration and added depth in already existing courses. Furthermore, several of the science options (majors) have liberalized their requirements to allow free electives. Many students in these options choose some of their electives from the Humanities offerings, so that a significant number of our students graduate with about a third of their work in liberal arts."

"Candidates for the master's degree must take a year's work in one of the advanced humanities courses, and candidates for the Ph.D. in science or engineering are required to take work outside their own field which may be in the humanities. Some Ph.D. candidates complete a minor in the humanities by taking two year courses at the advanced level and passing an oral examination in the minor field." [Fisher, 1960, pp. 179, 180]

6.4. TWO LIBERAL ARTS COLLEGES.

Two colleges will be discussed in this section: Amherst and Antioch. They are not typical liberal arts colleges. Amherst is one of the most sought-after colleges in America, and its students are a highly selected group. Antioch is an unconventional college; indeed one student said, with more insistence than accuracy, that at Antioch it was conventional to be unconventional, and unconventional to be conventional!

It would be very difficult to define a 'liberal arts college'. "It cannot be assumed that the inclusion of liberal arts in the name of a college and the presence of courses commonly accepted as such assure a liberal education to those enrolled in that college." [Dressel, 1959, p. 60] For the purpose of these pages, a liberal arts college is defined as one which has a firm commitment to general education, and provides also at least some pre-professional training. (Liberal arts

colleges do not customarily provide post-graduate degrees). Even this modest attempt at a definition would exclude St. John's College 'which professedly and actually has neither vocationally oriented programs nor majors in the upper years of the four-year curriculum involving a high degree of specialization'. [McGrath, 1958, p. 12]

Dewey in 1944 said that the name 'liberal arts college' was 'more reminiscent than descriptive'. The determination of Amherst College to change this tendency is seen in the next section. The 1945/1954 reports contained in Education at Amherst [Kennedy, 1955, p. 21 - 25] "declared that by popular demand such a variety of separate curricula and vocational courses had been introduced in American colleges, particularly in those existing as component parts of universities, 'that they have become almost unrecognizable from what they once were'. Most of the larger colleges and all the weaker smaller ones had been obliged to drift with this tide in order to stay in business; only a few well-endowed small private institutions and a handful of superior university colleges had succeeded in resisting it to any degree. The result was, in the opinion of the Amherst committee, that all effort to maintain a common core of essential studies had been abandoned. On most campuses, the only remaining requirements amounted to 'something or other for a major, the ability to write the English language (defined as passing a composition course), and to be able to swim fifty yards'." [Rudy, 1960, p. 130]

What answer do McGrath and Russell give to the question Are liberal arts colleges becoming professional schools? Firstly they see no likelihood of the liberal arts college disappearing from the educational scene. "The four-year liberal arts college is the most imperishable unit in the American system of higher education." [Ibid., p. 13] Secondly, they do see, and welcome, a move towards "the professionalization of liberal arts curricula and the liberalization of professional curricula." The two types of institution are becoming more alike. "The graduates of our institutions of higher education should have a broad education for the responsibilities of citizenship and a

specialized education for work. And it will be well if these two educational goals are pursued under the same roof."

"What of the future of liberal education in America? The four-year, independent, liberal arts college has been with us over three hundred years and it is probable that it will be with us over three hundred more. It will, however, as the facts in this study have demonstrated, be an evolving institution -- one whose program will be composed of (1) general, liberal studies needed by all, regardless of their vocational choice, and (2) specialized instruction related to a particular occupation." [Ibid., pp. 13 - 16]

This optimistic forecast needs to be read together with a plea in McGrath's The graduate school and the decline of liberal education [1959b, p. 25] for drastic reforms in graduate education to permit a much-needed reorientation of liberal education, if there is to be hope for the future. McGrath says: "Although the graduate faculties are largely responsible for the present shortage of college teachers, that is not their sole adverse effect on liberal arts colleges. In a measure the graduate schools deny society the services which the colleges ought to perform by transforming them from institutions for general education into agencies for the initial vocational education of scholars. They produce college teachers prepared not primarily for their chosen work but rather for research activities of a limited character. Through the control of the political machinery in the academic community they determine the policies governing promotions and salaries. By their arrogation of the authority to define the conditions of professional advancement in terms of research and publication they divert the energies of college teachers from their proper employments."

"Further, they consistently oppose, often with shocking success, the attempts of liberal arts colleges to resume the time-honored function of providing a general education for youth regardless of their vocational objectives. But, most important, they have splintered the corporate body which once was the liberal arts college into small and often completely

unrelated departmental units. They have thus transformed the unified college curriculum into an agglomeration of subjects typically assembled in meaningless pattern according to the whims of students or more commonly their departmentally loyal advisors."

Amherst College and Antioch College lend prestige to the colleges which give first place to a liberal, general education.

6.41. Amherst College.

Amherst College is a 'College of liberal arts and sciences'. All students must take physical science and mathematics, European civilization, English, humanities, and a foreign language (the latter, unless excused by qualifying tests) in the freshman year, and 'Problems in American civilization' in the sophomore year. The social science requirements (the European and American civilization courses) are thus the same for all. The science requirement in the second year may be met by a choice of A, B, or C: A - chemistry and biology; B - a semester course in 'Evolution of the earth and man' plus a semester course in astronomy, biology, chemistry, geology or psychology; C-- descriptive astronomy. About one-third of the class of 1962, in 1959-60, chose A (chemistry and biology), and about one-third chose psychology under B. The humanities requirement in the second year is three courses from A, B, and C -- one from each, or two from one and one from another: A - literature, English or foreign language; B - philosophy, religion, classical civilization; C - fine arts, music, dramatic arts. Public speaking is a further course required in the second year. It is worthy of note that even with an élite group such as Amherst freshmen, it has been found wise to provide a course in English.

The total requirements of the general program add up in course units to just under fifty per cent -- 60 out of 128 credit hours. Students in their third and fourth years must prepare for a comprehensive examination in their major department -- 30 credit hours. They must also during these two years take at least fifteen credit hours outside the division in which they are majoring. [Amherst, 1962-1963, pp. 48 - 51] "These

courses will be less strictly limited to a single subject than most secondary school courses. For example, an English teacher may ask a student questions which he would call philosophical or historical. His physics teacher may be teaching him some chemistry. Or his history teacher may ask him to submit a report which involves some study of fine arts. In such ways every student will be reminded that knowledge does not belong to any one field and that education is more than specialized training." [Amherst, 1962, p. 11]

Nearly half the senior class graduates with honours. In 'honours', qualified juniors and seniors undertake a special program of study directed by members of one or more departments. This involves a long paper, usually with one instructor to guide his work.

The following statistics of the class of 1966 (which entered in 1962) will be of interest.
Total applicants: 1653. Accepted: 344. Matriculated: 271.

	CEEB verbal.			CEEB mathematical.		
	Applied	Accepted	Matriculated	Applied	Accepted	Matriculated
700-800	275	102	80	527	152	118
600-699	748	166	131	728	147	114
500-599	453	70	54	302	43	37
400-499	139	5	5	71	1	1
300-399	24	0	0	12	0	0
200-299	1	0	0	0	0	0
No score	13	1	1	13	1	1
	1653	344	271	1653	344	271

Rank in class.		
First fifth	218	80.4%
Second fifth	30	11.1%
Third fifth	11	4.1%
Fourth fifth	3	1.1%
Fifth fifth	-	-
Not listed	9	3.3%
	271	

Two-thirds of the entrants were from public schools, and one-third from independent schools.

President Plimpton said[pc] emphatically that an Amherst education was essentially functional, and not technical or professional. It was concerned primarily with understanding principles, not with memorising facts or mastering skills. He illustrated this from his own field of medicine, saying that fifty per cent of medical school teaching is out-of-date in fifteen years. A functional education brought at least a minimum comprehension of the principles of the three major fields of human knowledge: this comprehension of

all fields was more important than a study of single subjects. Although 85% of Amherst students -- the highest percentage in America -- go on to post-graduate and professional study, this was not, he said, the first aim of Amherst education. Amherst put preparation for life before preparation for graduate school. He quoted from Education at Amherst [Kennedy, 1955, p. 30] with approval; Amherst teaching sought not so much the 'eternal truths' or 'the greath traditions': it aimed to show 'how to control by intelligence a changing world'. He had no time for survey courses, and his faculty supports him fully on this point. He himself had as an undergraduate at Amherst suffered a 'Christ to Coolidge' course, and all he remembered of Coolidge was that he was an Amherst graduate! Professor George R. Taylor in his course on American civilization leaves out the Civil War in alternate years. Professor A.B. Arons supports 'a more critical and parsimonious selection of content' in his very successful physics-calculus course.[Arons, 1959, p. 659] He describes also the use of essays in physics; this had proved to be popular with the students, in spite of the fact that it was very demanding. Here follows one example.

"Describe the development of your own conception of the electron since the time at which you wrote your original statement until the completion of study of the assignment. The organization and content of this essay should evolve from your original statement. The following questions are not intended to serve as an outline, but are merely given as illustrations of the kind of questions you may wish to consider: Are you personally more convinced than you were previously that there is a rational basis for visualizing 'electrons' and their properties? If so, when did this conviction dawn upon you? If you are dissatisfied on some point, can you suggest an experiment which might give further evidence? Were there any surprising aspects in what you learned about the electron? Out of all information now at your disposal what seems to be the most direct reason for postulating the concept of the electron? In the historical development, what seem to have been the most difficult steps to make? Are there any which you still have difficulty in understanding? Which of your original questions are still unanswered? Are there any new questions which have been raised in your mind concerning the nature of the electron?" [Arons, 1959, p. 662]

Amherst College was founded in 1821, and "the history of more than a century of national concern for general education is epitomized in the history of Amherst." [Thomas, 1962, p. 114] Amherst was born at

the time of the first stirrings of revolt against the classical curriculum of American colleges. Curricula reforms in 1827 sought to achieve what the faculty regarded as a greater and more useful flexibility while preserving the essentials of a common intellectual experience. Rudy [1960, pp. 52, 53] explained that the high tide of electivism at Amherst, as elsewhere, was reached at the turn of the century. In 1905, Amherst freshmen were required for the B.A. degree, to take English, mathematics, and one ancient language, and, for the B.S. degree, to take the first two subjects plus two modern languages. The curriculum of the remaining three years was largely elective. By 1915, perhaps owing to the influence of President Lowell's 'concentration and distribution' plan at Harvard, Amherst required its students to concentrate their elective work around two majors, each of at least 6 semester courses. The B.S. degree was abolished for classes entering after 1913, but science majors simply proceeded under the rules for the B.A. degree. Every candidate had to take one ancient language in freshman year. By 1935 the number of majors was reduced to one, and the rest of the curriculum, with the exception of the required freshman courses, was freely elective. In 1947 revision led largely to the present curriculum, in which the work of the first two years is largely prescribed, as shown above: three two-year sequence courses in natural sciences, social sciences, and English/humanities. In the final years 30 credit hours in a major are necessary, and 15 outside the division of the major. The 1827 revision had sought more flexibility. The 1947 revision sought to restore the essentials which had been all but lost in curricular fragmentation.

Education at Amherst, edited by Kennedy, is the work of two faculty committees -- one which formulated the new program described in Part I and Part II (which were written in 1945), and the other which reviewed the situation nearly a decade later in Part III (which was written in 1954). The 1962-63 catalog shows that the views expressed in 1945 and 1954 are firmly entrenched. Thomas [1956, p. 163] places this study on a level with those of Minnesota (1937), Harvard (1945), Columbia (1946), and Chicago (1950).

He stresses the fact that recommendations were made to the faculty, which included revisions of policy with respect to the social activities of the student body; to admissions, guidance, and scholarships; and to some aspects of administrative procedure. It held 'closely to the principle that a liberal education is the product of the whole of the college experience'.

6.42. Antioch College.

This same principle rules, probably more thoroughly than in any other college, in Antioch. The academic requirements are only one part of the general education program. These will be summarized first, but it is necessary at the outset to make clear that students follow alternate periods of work and study, quarter by quarter of eleven weeks each, throughout the normal five years required for graduation. Able students can graduate in four years, and about twenty per cent do so.

The minimum credits required for graduation are:

Courses	B.A.	B.S.
General education courses	67-72	67-72
Courses in field of concentration	60	40
Basic science courses	-	30
Elective courses	28-33	18-23
Minimum total academic credits	160	160
Minimum co-operative credits	90	90

The above information, and that which follows, is from [Antioch, 1961-63].[1]

The general education courses are divided into three levels. Level I requirements are primarily for the first two years. Entering students take placement and Level I achievement examinations during Freshman Week. Those who do well on achievement examinations may accelerate their programs or go on to more advanced courses. Level I examinations may be taken three times, but not more than once a year. Passes are required in two of the three areas by the end of the second year, and in all three areas by the end of the third year. 10 credits are required in each of the three areas. 10 credits are awarded for an H (high or honour) pass, and 5 for G (good); S (satisfactory) means that the course need not be repeated but earns no credit; U (unsatisfactory) means failure. In addition skills examinations in English and mathematics must be

1. This information has been summarized: there are certain exceptions.

passed by the end of the second year. No credits are awarded for success. In addition 'Introduction to Antioch' (1 credit), and 'Physical education activities program' (6 credits), and 'Assembly' each year (series of lectures with attendance required for graduation) are required. During the winter or spring quarter of the first year, students must file a proposed chart of general education studies, which outlines plans for courses, examinations, jobs, and community participation as they contribute to general education. A student may not register for courses or other work for credit that are not in harmony with this proposed chart in general education unless it has been amended properly. This proposed chart is later incorporated into the proposed course of study for the degree, which must be filed and approved in the third year.

Ten credits in each of the three major areas are required for Level II, and none of the course requirements may be waived by achievement examination. The Level II achievement examination is a single examination that covers all three areas. A Level II 'writing check' is made before entry to the senior year.

The Level III 'General education seminar' is open only to seniors who must have passed the Level II achievement examination, have 25 Level II credits, and have passed the writing skill check. It is devoted to some broad topic (for example, 'Natural resources and human needs', 'Art and culture') that should integrate a student's general education, bringing it to bear on the topic in a systematic fashion, and resulting in some deep thinking about one's philosophy of life. Groups are limited to 15 students, and each has a different topic of major significance and wide scope, involving new and basic problems. Students are expected to bring together and relate all they have learned at Antioch.

Level I and Level II courses may be chosen from long lists. "The most fundamental [change] in the College's curriculum since Arthur E. Morgan's introduction in 1921 of its emphasis upon educating 'generalists'" took effect in the fall of 1957. One of the most significant changes was that no one course is required of all students, whereas before students

had nine obligatory courses, and five chosen from a short list providing few options. The renaissance of Antioch College dates from the start of the Presidency of Morgan in 1921 and it is interesting to note that his emphasis on 'generalists' and on the 'symmetry' of the individual was stressed before the term 'general education' came into vogue. [Keeton, 1957, pp. 145 - 149] The extent of present choices, especially in the humanities (27 Level I courses and 33 Level II courses) is surprising, but it must be remembered that all students must study the Syllabus for students' programs of general education at Antioch College [Antioch syllabus, 1960], and the details of the proposed chart of general education studies is discussed with an adviser, and may not be departed from unless amended properly. "Antiochians once had to take general education courses in fourteen different subjects. You are free from this extensive requirement and may actually study in as few as six different fields; but the price of this freedom is that, with the aid of the syllabus, you must either come prepared in other respects or make up your deficiencies in other places by courses, job experiences, community activities, and study plans of your own." [Ibid., p. 14]

Other major changes which followed the Carnegie study of the Antioch educational program [Keeton, 1960, p. 3] were the following: Greater provision was made for general education and concentration to flow side by side. General education was planned to proceed from elementary to advanced studies to allow for depth as well as for breadth. General faculty control, and continuous effort to clarify the functions of general education offerings were assured by the appointment of a standing faculty committee on general education.

So much for Antioch's academic program. The College's work-study plan of education is well-known throughout America. Morgan in 1921 had been influenced by the institution of cooperative education at the University of Cincinnati in 1906 by Herman Schneider. Now some seventy colleges require work and other experiences off-campus. These are usually engineering or business administration students. At Antioch every student whether a philosophy or a physics

major, whether an engineering or an education major must take part in the co-operative plan. This has many well-known advantages. The alternate study of theory and practice, and the ability to try out several jobs has vocational importance. Earning while learning helps with financial problems. These are however not the main purposes of Antioch. Indeed to take a job in a metropolitan area may increase not decrease living costs. Vocational objectives are an important part of a total general education plan -- but only one part.

The usual university student is, in his first year or two certainly, little more than an overgrown schoolboy. The world of study and the world of home are his confines, and he seems strangely naïve by comparison with his school-mates who went straight to work, and, perhaps for that reason, rather over-assertive. For the cooperative student, off-campus experience can extend the work of the class-room, and then be evaluated on return to study with advisers and other students. 'The essence of maturity can come only through the insight which arises out of the interaction between living, blundering, and studying and dissecting our blunders. Neither living without self-study, nor study without living is enough'. Successful off-campus living is regarded so highly at Antioch that it is a major degree requirement, carrying credit.

Employment possibilities include business offices, industrial plants, research laboratories, social settlements, government bureaus, newspapers, schools, hospitals, museums, department stores. Students customarily have held four to six different jobs by the time of graduation. 450 employers in 30 states and 14 other countries co-operate with Antioch.

Students attend orientation conferences in preparation for the jobs they go to. Reports from students who have been out on similar jobs are available. Students test and reshape career aims and plans for study as they go along. In upper-class years jobs may tend to remain within one field of interest, with increasing responsibilities. Written reports are required after each work-quarter. Reports may describe and evaluate the job itself, the community, or the student's total career. During one job period, a student

may, instead of writing a report, perform substantial community service, or take part in some community activity, or submit the results of some creative activity performed outside the job. [Antioch, 1961-1963, pp. 18 - 22]

The emphasis is less and less on the comparison of 'work of the hands' and 'work of the head'. "Today we think of it increasingly as the alternation of campus studies and off-campus educational experiences. The latter may include foreign experience (work, study, or travel), uncompensated service projects (work camps, internships in community service), a period of independent writing or study (including a senior independent study period), an assignment in a research institution (paid or unpaid), a period in a specialized technical school (arts school, medical technology school), or any other experience approved in advance by the appropriate faculty as an appropriate medium for complementing the student's learning opportunities on campus. Work for pay continues to predominate among off-campus experiences; but the term 'extramural' is again used in the name of the department arranging these experiences. The term 'extramural studies' goes back in Antioch history to the 1920's, and consideration of the educational uses of many non-remunerative off-campus arrangements was intensified during the depression." Increasingly, the 'earn while you learn' motive is losing force, as over 50% of senior men, and over 30% of senior women go on to graduate school. The co-operative program, which was initially established as a student personnel function, was transferred after the 1959-1960 review to the administration of the Dean of the Faculty as basically an educational function. [Keeton, 1960, pp. 5, 6]

The third important part of an Antioch education is the community program. There are 1500 students at Antioch (about 55% men, and 45% women, with about 100 students abroad each year on AEA -- 'Antioch education abroad'). Antioch is however a closely-knit community of 2000, with its own Community Government, composed of students, teaching-staff members, administrative-staff members, staff of the associated enterprises, and any spouses of these persons. It is run by a Community

Council (Comcil) of three staff and six student members. The chief administrator is a Community Manager. All are elected. The Community Manager is engaged for six months at a time, and assisted full-time by two students. Comcil provides cultural, entertainment, recreational, and information services, and assistance in orienting students and staff-members to the Antioch community. It provides for a book-store, fire protection and auto-safety. It establishes and maintains codes of conduct, and the Antioch honour system is very extensive. Considerable freedom is allowed throughout the community, and this privilege carries with it the responsibility of acting within the honour system. There are no invigilators at examinations, which students may write in their own rooms or in the library: they are honour-bound not to consult books. Severe sanctions, including expulsion, can be applied to those guilty of serious violations of college regulations.

Ultimate control is vested legally in the Board of Trustees. It delegates authority to the Administrative Council to advise the President on college policy. It is composed of three faculty members elected by the faculty, and two faculty members and three students elected by the community. It participates in decisions on programs, budgets and faculty personnel. It shares responsibility with the trustees in electing the President. It elects seven of the members of the Board of Trustees. [Antioch handbook, 1960, pp. 4 - 25]

The degree to which Antioch allows students a voice in the highest councils is unique in American education. The faculty of Antioch believes that this participation in Community Government in every sphere -- academic, administrative and social -- is an important part of general education. The community is, in fact, proudly called a 'laboratory in democracy'.

Does it work? One frank member of staff said[pc] that it was a matter of 'going from crisis to crisis'. It was very time-consuming for the faculty with endless meetings. A staff member interested in research, and publishing, and graduate teaching, would not wish to stay at Antioch. The scheme, he said, would not work successfully in a large community, but did in a small community where everyone knew everyone. Faculty support

was imperative.

To an outside observer there did seem to be a sense of devotion to this unusual community among the faculty. Students no doubt select themselves to a large degree as persons who, knowing of the Antioch life, want to participate in it, and who favour especially the permeation of the whole program by the general education objectives. Only 10% come from Ohio: 90% come from 47 states and about 12 different countries. The selection policy of the administration is to find students of diverse personality and backgrounds.

During a visit in 1960, meals were deliberately taken with the students to provide opportunities for discussion with them. They obviously guarded jealously the Antioch freedom. They said that they readily accepted decisions taken, because they were reasonably arrived at, not imposed. They would have no hesitation in 'sending to Coventry' anyone who violated the Antioch spirit, and that would be a severe punishment in a closely-knit community. Academically, they found Antioch 'hard-going'. A frequently heard comment was: 'It makes or breaks you'.

The Carnegie Study suggests that primary attention needs to be given to efforts to ensure that greater educational value shall flow from Community Government. An interesting comment from the report follows: "In educational policy student influence tends to be conservative (that is, reflecting reluctance to undertake major change). In matters of social mores, student influence tends on the whole to be radical (that is, to accord more individual latitude to act on personal judgment than is approved in the environs)." [Keeton, 1960, p. 11]

A fourth major aspect of general education is 'Antioch Education Abroad'. Students who wish to participate in AEA must have completed at least two years at Antioch with above average achievement both on-campus, and off-campus, and must naturally possess adequate language skills. In 1960-61, over 150 students (out of about 1200 enrolled) followed programs in France, Italy, the Netherlands, and Scandinavia; in the British Isles; in Mexico; and in Africa, Austria, Germany, India, Israel, Greece, and Switzerland. The

year abroad should preferably be available at no greater cost than a year at Antioch. Work periods abroad probably take place during university vacations. Centres have been established at Besançon (France), Tubingen (Germany), and Guanajuato (Mexico). At the Antioch Centre of University Studies at Besançon, students begin with a month in summer of intensive language courses, followed by job assignments, which are usually with families, on farms, or in educational and social service organizations, and which further language facility. The university study year follows, with classes in language and in subjects of the student's choice. A weekly seminar supplements the formal lecture system of the university, serving not only as a focus of independent studies, but also as a bridge between the American and European educational systems. At the conclusion of the academic year, in the summer that follows, students may take a job abroad, or return to work in the United States. In every plan of education abroad the emphasis is on understanding another country through participation in its culture and through an organized program (beginning with a required orientation course) rather than a haphazard accumulation of casual experience. [Antioch, 1961-1963, pp. 30 - 32, 171 - 177]

AEA started in 1956-57, and the Carnegie Study serves to encourage its continuance. The impact of students returning from university systems and cultures with different orientations is also being felt in the very broad appraisal of approaches to a field of study as well as in students' broader perspectives upon American culture. With the restudy of AEA, a fresh examination of the provision for foreign students at Antioch was made. [Keeton, 1960, pp. 9, 10][1]

The question inevitably is asked: How do Antioch students compare as scholars, when so much time is devoted to off-campus activities? Quantitative estimates can give no more than a rough indication. A list was made of the number of Ph.D.'s (and holders

---

1. The journal of general education, vol. XIII, no. 4, January, 1962 contains four articles on 'Study abroad', with editorial comment -- largely on the importance of non-western studies -- by F. Champion Ward. See also Study abroad [Abrams, 1960].

or winners of comparable honours) per 1000 male graduates for 562 colleges (about two-thirds of the 1948 total of about 800). 7000 graduates were included in the study. The number of graduates who earned Ph.D.'s (after 1948) in any one of 25 different universities were counted. (These 25 universities account for about 75% of all degrees of Ph.D. granted). Antioch found itself in very good company:

8th Princeton - 32.4
9th Antioch - 31.5
10th Harvard - 27.3
11th Yale - 27.2.

[Knapp, 1953, p. 16][1]

A further table is given in this study, which breaks the information into three divisions: science, social science, and the humanities. Only the first 20 names are given in each case. 8 institutions appear in each of the three lists: Swarthmore, Reed, Chicago, Oberlin, Carleton, Princeton, Antioch, Harvard.

Antioch was born in 1853, and Horace Mann was the first President. "Colonial Massachusetts was no egalitarian commonwealth with equal educational opportunity for all regardless of birth or position. In this New World community the ideal of even an elementary education was not realized for all children until the days of Horace Mann some two hundred years later." [McGrath, 1959a, p. 12] From the start Antioch was atypical. It admitted students without discrimination as to sex, creed, or colour; put women faculty on a par with men; emphasized the physical health of its students; stressed the importance of character as well as of academic proficiency; minimized the importance of grades as an incentive to study; and even provided a few elective courses. [Henderson, 1946, p. 1]

It was a privilege to have a personal conversation with Dr. Morgan. He spent the time however discussing not Antioch, but the sociology of the small community, which he believes is the foundation of democratic life.

---

1. Details for some of the other universities dealt with in these pages follow: 3rd Chicago 48.4, 6th Caltech 38.2, 17th M.I.T. 20.6, 23rd Columbia 17.7, 28th Amherst 17.1.

(The population of Yellow Springs is 4,200, and he always hoped to establish a series of small industries in this small community. This made Yellow Springs an ideal location for a university college, he said[pc]).

It is, therefore, necessary to turn to Henderson's account to find a description of Morgan's early contributions to Antioch. In 1920, it was 'moribund after an honourable but exhausting half century's struggle with finances'. Morgan was an engineer, and later became the first Chairman of the Tennessee Valley Authority. "His own college experience limited to six weeks of a freshman year, he had definite ideas of what he had wanted college to do, and through his association with college men in engineering had come to definite conclusions concerning what our present-day college and technical training did not do ..... Just as Mann was Antioch when the doors of the College opened in 1853, so Morgan was Antioch when the new plan was launched in the fall of 1921." [Ibid., p. 2]

University and college education, he believed, produced men and women who were either educated for nothing in particular, or else trained to be narrow specialists. Educational needs, Morgan believed, were: physical health; training for work; experience in work; an appreciation of social, religious, economic, and aesthetic values .....; a sense of proportion; a knowledge of history, literature, and science; and a life purpose and philosophy. Antioch, a small college of limited resources, could not and should not try to compete with the large universities. It would emphasize the small proprietor in business or the professions. But the teachers at Antioch had been to conventional colleges, and by 1930 the curriculum looked much like any other. Some small industries were actually started - a printing establishment, a bronze foundry, a shoe project. Co-operative jobs in nearby Dayton and Springfield soon multiplied, and large corporations further afield became interested in employing students from Antioch, and the small industries -- some still surviving -- had little part to play at Antioch. Morgan initiated the Administrative Council and Community Government in 1926, and these were special interests of Henderson when he became President in 1936.

Henderson no doubt expresses his own views when he says: "Though the Antioch of today is a group venture, it still proposes to develop young men and women who are whole persons rather than specialized fragments, individuals who are critical-minded rather than conformist. It aims to extend its influence, however, less through people who will go out and build their own individual worlds around themselves as entrepreneurs than through people who will extend the democratic attitude and method wherever they are working."

"The real heart of Antioch still is social-mindedness, as it was in the days of Horace Mann -- the champion of the Negro and of universal education who told Antioch students to 'be ashamed to die until you have won some victory for humanity' -- and in the days of Arthur Morgan, who did not confine his social views to education but helped put them to work in the great regional project of the Tennessee Valley Authority. Antioch's continuing heritage is its desire for a better world and a will to help achieve it."

6.5 SOME UNUSUAL COLLEGES.

6.51. Berea College.

Another unusual college is Berea College in Kentucky. In 1958 it enrolled 1,273 students, nearly evenly divided between men and women. A condition of admission is that a student needs financial aid to obtain a college education. Ninety per cent of students are selected from the mountain regions of eight South-eastern states. To meet a portion of his expenses, each student is expected to engage in some work; the labour program has been developed to provide jobs. Many constitute a useful vocational apprenticeship. Unlike the Antioch work-study plan, the labour program is not incorporated into the academic program. There is considerable homogeneity in the social, cultural, economic, and geographical background in the student body. There are however considerable disparities in secondary school preparation. The college therefore provides instruction in basic composition, literature and reading, mathematics, geography, and American history and government.

The curriculum of the college is subdivided into a general college curriculum, and a senior college curriculum. The former is a core curriculum which engages most of the time of students during their first two years. The senior college curriculum allows for fields of concentration, and for vocational preparation in agriculture, industrial arts, business administration, home economics, nursing and teaching. [Thomas, 1962, pp. 134, 135]

6.52. St. John's College in Annapolis.

"All customs, all arts and sciences, however particular, embody principles of a general nature. To be aware of these principles means to be able to look beyond the immediate, the accepted and the necessary. The acquisition of such ability is the goal of a liberal education ..... In deciding what the welfare of an individual and what the common good require, one has to distinguish between the expedient and the just, the apparent and the true, the contingent and the essential." St. John's Charter was granted in 1784 "for the liberal education of youth in the principles of virtue, knowledge and useful literature." It is difficult, therefore, to separate the idea of liberal education from the ideal of scholarship." [St. John's, 1960 - 1962, p. 4]

The growth of new sciences, and the broadening of the humanities resulted in a multiplication of subject matter, and the elective system was invented to cope with this situation. The device of 'majors' hardly alleviated the pressure of graduate schools, vocational schools and the demands of the profressions on liberal arts colleges. In 1937, St. John's undertook to revalue the content of liberal studies, and their relation to education and to scholarship. It was decided to go back to the sources of the traditional heritage of the West, the great books in which it is enshrined, in the spirit of Erskine at Columbia. The St. John's list is fairly stable, but every year the names of some books are taken off the list, and some are added. They are 'classics,' but not because they are 'venerable', and certainly not because they are 'out-of-date'. 'A classic', says Hutchins, 'is a book

that is contemporary in every age'. In spite of his vigorous advocacy of the traditionalist-humanist viewpoint on general education, St. John's is the only non-Catholic college to reorganize its curriculum along the lines suggested by Hutchins. (Roman Catholic colleges tend to centre their program of studies on Catholic theology, rather than on general metaphysics). [Rudy, 1960, pp. 132, 133]

One of the official seals of St. John's College shows seven books surrounding a pair of scales. The balance stands for the instrument of the scientific laboratory. Descartes three hundred years ago introduced algebra and the arts of analytic mathematics into European thought. The first two years of the St. John's course cover the historical period from the Greeks to Descartes. The last two years exhibit the far-reaching changes that flows from the intellectual revolution which leads up to the scientific revolution of this century. For this purpose St. John's 'has more required mathematics and laboratory work than any liberal arts college in the country'. [St. John's, 1960 - 1962, pp. 4 - 8]

St. John's is "committed to the philosophy of rationalism, a neo-Thomistic philosophy which advances the belief that within the work of the classical writers may be found basic principles and absolute values which reveal the basic nature of the university and the relation of man to nature and God. The proper orientation of general education, therefore, lies in a serious study of the past." [Mayhew, 1960b, p. 51] A single required course is built around a study of about one-hundred great books of the western tradition, of which some are read only in part. [St. John's, 1960 - 1962, pp. 36 - 38] St. John's offers no majors, and has no professional objectives.

There are six divisions of the curriculum: the seminar, the language tutorial, the mathematics tutorial, the music tutorial, the laboratory, and the formal lecture. [St. John's, 1960 - 1962, pp. 11 - 26]

A seminar consists of 15 to 25 students, with 2 or 3 staff members as leaders. It meets twice a week for two hours. Preparation consists on the average of one hundred pages of reading. This free

discussion, continuing over a period of four years, and dealing with persistently recurring questions, problems, and ideas, in the varied and changing context of the great books, is the core of the St. John's program.

The language tutorial, the mathematics tutorial, and the music tutorial support the seminar, by providing an opportunity to cultivate the habits of methodical and rigorous study. Two tutorials or classes are held on three or four mornings a week of one hour each throughout the four years -- one in language, and one in mathematics. 8 to 15 students meet under the guidance of a tutor. (There are no professional ranks at St. John's. All members of the faculty are called 'tutors'). Tutorial classes provide the conditions for teaching and learning relations, and for collaborative study. In the language tutorials English is studied for four years, with special emphasis in the first two years. Greek is studied in the first two years, German in the third and French in the fourth. 'Next to the mother tongue the language of numbers and figures is the most important symbolic possession of man.' Students study mathematics up to the differential and integral calculus and differential equations in rigorous modern form, but over the four years they will read in full, or in part, works of Euclid, Ptolemy, Appolonius, Kepler, Descartes, Newton and Lobachevski. In the music tutorials during the first three semesters fundamentals of melody, form, metre and rhythm, polyphony and harmony are studied. Major compositions from Bach to Stravinsky are analysed. Seminars are provided on great works of music. Music is considered to be one of the liberal arts, but not so the fine arts which are the subject of extra-curricular study.

Laboratory work is provided in biology, chemistry and physics. In each year students study a selection of scientific papers to trace 'a scientific discipline to its roots in principle, assumption, and observation'.

The formal lecture (sometimes a concert) takes place every Friday night, and is followed by intensive discussion. They are given by guest speakers or members of the staff.

6.53. Sarah Lawrence College.

All students follow the same program at St. John's: each student works out her own program at Sarah Lawrence. St. John's follows a philosophy of rationalism, with the curriculum central; Sarah Lawrence follows a philosophy of instrumentalism, with the student central.[1]

They are both small colleges. St. John's enrols some 200 to 300 students and has been co-educational since 1951. Sarah Lawrence is much younger than St. John's; it opened in 1928. It is a women's college, and enrolled 500 to 600 students in 1962-1963. Both make provision for a Master of Arts degree. Neither has staff ranks such as professor, associate professor, assistant professor.

There are no required courses. A curriculum is planned individually for each student. Faculty reports are made to students in place of the conventional grading system. The creative arts -- painting, sculpture, design, theatre, dance, music, writing -- are integral parts of the academic curriculum.

The majority of classes are small enough for discussion. Each of these classes of from 8 to 15 is supplemented by individual conferences for each student. Sophomores and juniors have a small number of lectures, supplemented by group conferences. As at Antioch, it is believed that education is more than intellectual development; it should enable students to learn how to live as members of a community. They may spend the junior year abroad. Student government, the organization of life in the residences, and a generous degree of personal freedom, all place responsibility on students to act with good judgment. Academic time, independent study, field work, work in the dance studio and theatre, all require planning. Students are given an opportunity to plan, not only their own curricula, but the college curriculum itself. Wise help is needed for the proper use of such responsibilities, and every student has a faculty adviser, or don. The don's primary responsibility is to plan the work of the year, or of the full four-year period; some students have one don for four years and some change each year. Dons may assist with personal problems also. The freshman must take one 'exploratory course', of which there were 14 in 1960-1961; the teacher ordinarily remains the don for each

1. See ch. 9.

student for one year.

"Sometimes freshmen come to college with interests already sharply directed -- toward science, or music, or politics -- and they occasionally want to spend most of their time in their chosen field. It is very important that students with strongly directed interests and special gifts be permitted to follow their bent at once; but it is also important for them to guard against the narrowness that comes from too early specialization. When it seems advisable for a particular student to concentrate in a single field, this is arranged, though never in the freshman year.

Since there is no system of required courses and since students are not required to have a major in a particular field, it is necessary not only to plan the programs for a single year carefully, but also to see that the sequence of studies taken from year to year is an intelligent one. For some students a typical four-year program shows an increasing specialization; for others who may have begun with highly specialized interests the process of education is one of broadening these interests and of finding new, and sometimes more important, ones; for still others a program shows fairly even division of emphasis, perhaps between two fields. There are many appropriate kinds of programs; the important problem is to find out which kind is best for each student and to plan it to insure the maximum growth." [Sarah Lawrence, 1960 - 1961, pp. 5 - 17]

Is this a general education program? Dr. Harold Taylor, President from 1945 to 1959, had this to say in a letter to Dr. Lewis Mayhew. [1960, p. 50]

"We do not believe in the kind of general education which surveys given areas of the curriculum in an effort to achieve subject-matter coverage. We prefer to have students choose three areas, or courses, each year in terms of their own interests and the aims they have in mind for their college education. In each of the courses chosen, a student is encouraged to go deeply into a few topics rather than to spread widely over a given area in the subject ..... In this sense, we do not belong in the general education movement since we try to have our students go deeply into a few areas rather than otherwise. In the sense that we do not believe in departmental course offerings or sequences

of courses leading toward a major, we do belong in the general education movement, with the difference that we plan individually for each student rather than having a program for all."

CHAPTER 7.

GENERAL EDUCATION AND THE PROFESSIONS.

7.1. THE RELATIONSHIP OF PROFESSIONAL STUDIES TO THE LIBERAL ARTS AND SCIENCES.

There have been very many references to the three major fields of human knowledge -- the humanities, the social sciences, and the natural sciences -- in these pages. That this is an over-simplification is evident when it is realized how often universities are undecided whether to classify history as one of the humanities or one of the social sciences, or psychology as one of the social sciences or one of the natural sciences, or mathematics with the natural sciences or with the humanities. Frequently writers speak of the spectrum from the fine arts, through the humanities and social sciences, to the biological and physical sciences. Where do studies of divinity, law, and education, or of medicine, engineering, and architecture fit in?

Cassidy [1962, pp. 11, 24] provides two diagrams in his The sciences and the arts of great significance. He shows how (Figure 1)[1] a circular representation of the liberal arts and sciences answers the problems raised in the second sentence of this section. He takes this valuable concept much further (Figure 2)[1] in his spherical diagram of the 'university continuum'.

Some explanation is necessary first of the wording accompanying the diagrams. Cassidy says: 'We live in a web of connectedness with the world'. He notes, and would wish to remove, the misunderstanding between scientists and humanists. He believes, and sets out to demonstrate, that there is greater similarity of intellectual methods used, than is normally recognized.

Every man whether he be artist, scientist, or technologist is engaged in three activities: analysis, synthesis, and reduction to practice. The analytic activity involves accumulating data, increasing specific knowledge or particular experience. It makes distinctions, divides, classifies -- in both arts and sciences, Cassidy shows. [p. 21]

Synthetic activity is the search for connections among data and among theories, and this may proceed

1. See page 307

deductively or inductively. Cassidy gives examples from science and from music. "The analytic and the synthetic shade into each other, and often it is difficult to decide which is being demonstrated in a given instance. In such cases it is usually unnecessary." [p. 22]

"The third kind of activity which art and science include is reduction to practice: the activity which returns from the general or theoretical to the particular or practical, the activity which puts to use on a particular occasion the general or theoretical. Ultimately, knowledge and experience are sought for use and have a use, and it is in their application, their reduction to practice, that the results of analytic and synthetic activities are tested for validity. All three activities -- analysis, synthesis, and reduction to practice -- must go together for science or art to be healthy."

"This classification of activities is intimately connected to the definitions of the arts and sciences discussed earlier in this chapter in connection with Figure 1. In that discussion I noted that there are certain disciplines of which I did not take account in my definitions. By utilizing the classification of activities I can now relate to each other all the disciplines by means of another figure (Figure 2). In this figure I diagram four divisions of the continuum of knowledge and experience, as they are exemplified in a university. Near the top of the diagram synthesis is emphasized; near the bottom, reduction to practice."

"The more theoretical departments and professions lean to the analytic and synthetic functions, while the technologies emphasize application. For example, chemistry is the theoretical side and chemical engineering the applied side of the discipline that deals with the transformation of matter. Law is the technology which utilizes and applies the analytic and synthetic discipline of jurisprudence; medicine is the technological summation of a constellation of arts and sciences including psychology, biology, and biochemistry; religion is, in part, the technology of theology; advertising and other kinds of propaganda are technological manifestations of art, literature, psychology, and so on."

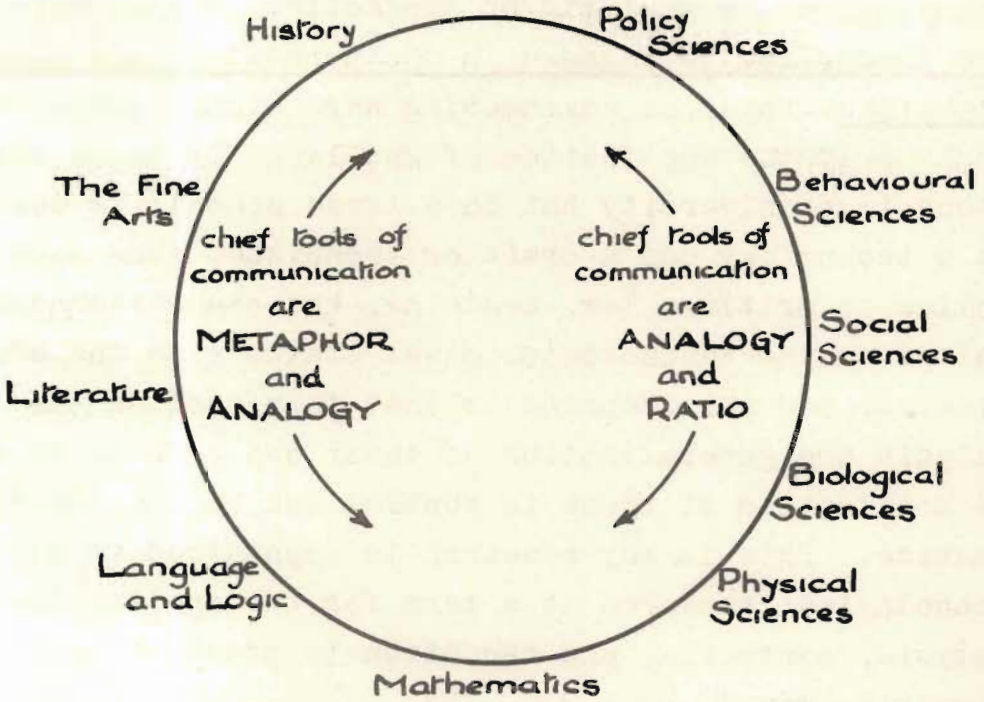


FIGURE 1:- Circle showing a definition of the arts (humanities) and the sciences.

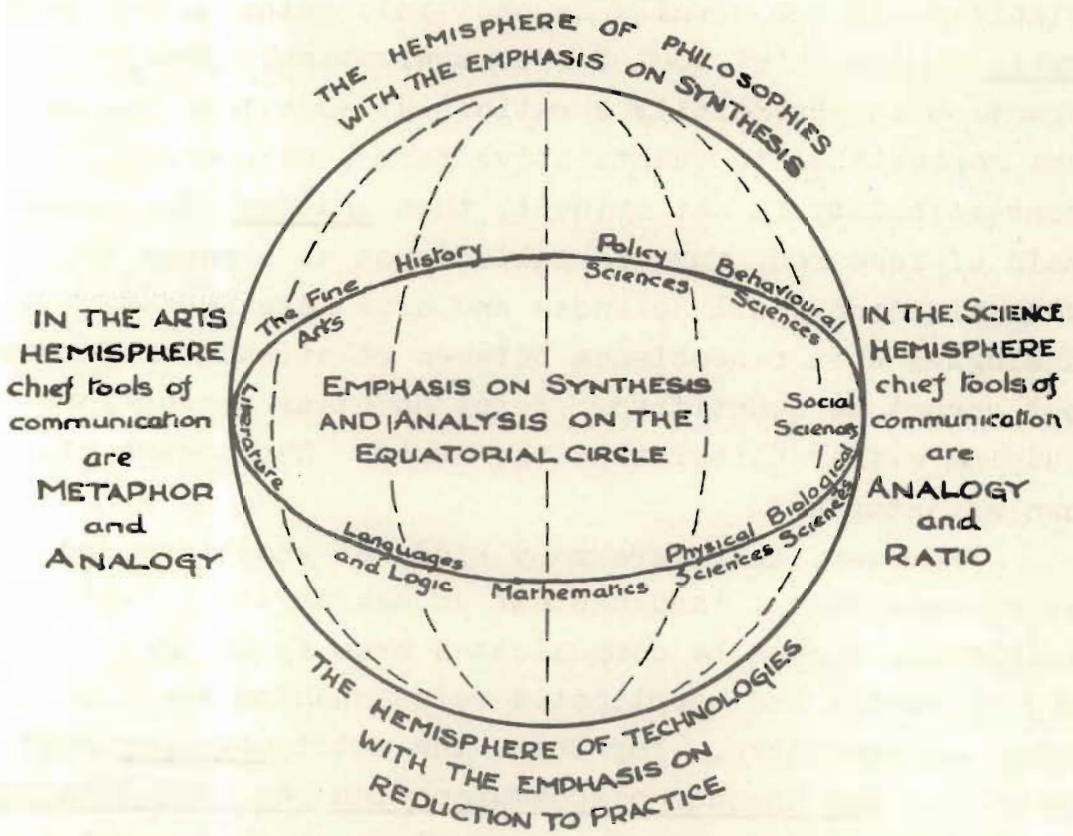


FIGURE 2:- Sphere showing a conceptual analysis of the structure of the university.
The equatorial band of disciplines is the same as that of Figure 1.

"None of these disciplines is exclusively technological or analytic or synthetic. Furthermore, each discipline is engaged in the pursuit of all three activities. Thus, if engineering were a discipline which taught only the application of knowledge it would not belong in a university but in a trade school; it would be not a technology but a craft or technique. The same applies to writing, law, medicine, and other technologies. What gives the technologies equal status with the arts, sciences, and philosophies is that they include the analysis and generalization of their own principles and the utilization of these to control and refine their practice. This is why research is emphasized in all the technologies: research is a term for the application of analysis, synthesis, and reduction to practice in a pioneering way." [pp. 23 - 25]

Finally, Cassidy, shows how ratio, analogy, and metaphor are used as means of communication. "In physical science, where quantitative statements of high precision and wide applicability are common, and where even the narrowest relationship of the most local significance can usually be cast into mathematical form, ratio is the chief tool for communication. Every equation is essentially a ratio. But when the data are not convertible to quantitative terms, or when their convertibility is not evident, then analogy, the handmaid of research, must be called upon as a means of communication. All sciences and arts make use of analogies when resemblance between relations can be seen but cannot be quantified. I see no clear reason for judging either better than the other. Each bears its own advantages."

"However, there are many kinds of knowledge and experience which, though clear enough to the artist or scientist, cannot be communicated even by analogy. They may be subtle and complicated relationships verging upon the ineffable. For these the swift metaphor must be used. The demands of communication may give metaphor a validity in its own sphere equal to that of analogy and ratio in theirs. All perform similar functions appropriate to the need. While science always moves in the direction of ratio, there seems to be no preferred direction in the arts. Fittingness rules in both." [p.164]

In the sections which follow, the educational program of various professions will be discussed. Naturally the vocational subjects contained in university curricula must rest on a foundation of ancillary subjects. Divinity will be based on philosophy, history, Greek, and Hebrew; medicine on physics, chemistry, psychology, and biology; engineering, on mathematics, physics, and chemistry. (Ancillary subjects do not fall within the meaning of the term 'general education' as used in these pages).

In America, all professions require in addition, certain general studies -- not just because they are 'different', but for the purposes outlined in this chapter and in the first chapter.

Cassidy's diagrams have been given prominence in this chapter because they show that general studies are in fact not 'different'; indeed they show that the arts and the sciences, the philosophies and the technologies, all form one continuum. Vocational subjects may stress reduction to practice, but they rest on the analysis and synthesis emphasized throughout the sphere. 'Throughout' indeed is the significant word for any discussion of general education. It is interesting to note that Cassidy's important contribution to a discussion of the common ground of the arts and the sciences stemmed from the time of his construction of a physical science course for Yale College students who would not become scientists, but would enter other professions. [Ibid., vii]

7.2. GENERAL EDUCATION: ENGINEERING AND ARCHITECTURE.

7.21. Engineering education: a brief history.

"Perhaps no other profession has been more attentive than engineering to the basic preparation of its practitioners. This concern was manifest when there were only a few schools of engineering in the United States, and it has continued with increasing intensity to the present day. If the profession still finds the engineering curriculum something less than many would wish it to be, this doubtless can be attributed in large part to the fact that, in education as in certain other phases of American life, there is usually a time lag between total national progress and curricular change to

conform to this progress. Certainly the profession has not been wanting in self-criticism nor in concerted effort to solve its curricular problems." [Sanders, 1954b, p. 2] Of the early engineering schools only Rensselaer Polytechnic Institute (1824) has survived as a school devoted almost exclusively to science and technology, and it is in the lead with regard to resistance to over-specialization today. Engineering education in general received considerable impetus from the Morrill (or Land-Grant) Act of 1862, when huge tracts of federal lands were turned over to the states for schools of agriculture and the mechanical arts. In 1893, the Society for the Promotion of Engineering Education was formed, and this movement resulted in some measure of independence for engineering education from industry and from the engineering professions. Engineers were 'men of action', and criticized 'cultural education' as aristocratic with no place in a democratic society; but they did not want to ignore 'cultural' subjects completely for fear of losing their professional status. In point of fact the battle in the first decades of this century was not for time for socio-humanistic studies. It had to contend with the 'know how to do it: don't worry why' objective of education, and to fight for more mathematics, and physics, and chemistry. It was said that engineers did not need a liberal education, because, unlike medical doctors, and lawyers and ministers of religion, they did not deal with people. [Holstein, pp. 21 - 35] Many major publications[1] over the years show increasing realization that this statment is false. [Sanders, 1954b, p. 3] and [Holstein, 1960, pp. 90 - 95]

7.22. The Gullette report. [ASEE, 1956].

Dr. Edwin S. Burdell, then President of Cooper

1. 1918 (Carnegie Foundation for the Advancement of Teaching); 1930 and 1934 (Society for the Promotion of Engineering Education -- the 1930 report is commonly known as the Wickenden report); 1939 (Engineers' Council for Professional Development). In 1940 and 1944 two more SPEE reports were published, known as the Hammond reports. The SPEE became the ASEE (American Society for Engineering Education) and published the Grinter report in 1953, and the Gullette report in 1956, [ASEE 1956]. Grinter and Gullette both reviewed the situation again in 1959.

Union in New York, was the Chairman of a Committee of the American Society for Engineering Education which instituted the Humanistic-Social Research Project with the backing of the Carnegie Corporation of New York. Dr. George A. Gullettewas Director of the Project, and the Committee's report was published in 1956.

"The basic findings of this study are:

1. That engineering educators throughout the country are in nearly unanimous agreement that their students would profit -- as professional men, as citizens, and as individuals -- from a fuller acquaintance with the resources of the humanities and social sciences;

2. That a sizable number of these same educators are honestly fearful that attempts to incorporate into already overcrowded curricula a substantial program of humanistic-social studies may either jeopardize the quality of the technical education, or lead to superficiality in the treatment of the humanities and social sciences; but

3. That some thirty or more of our leading engineering schools have demonstrated such fears to be groundless by developing carefully planned programs that provide a sound introduction to the humanities and social sciences while simultaneously reinforcing the student's engineering training." [ASEE, 1956, p. vii]

It is stressed that humanistic-social programs in engineering curricula flourish best under certain conditions. Vigorous administrative support is necessary, as is also full understanding between the engineering and liberal arts faculties, who must jointly formulate objectives. The studies in the humanities and social sciences must be treated as an integral part of the student's scientific and technical education, and preferably should reach into the third and fourth years to take advantage of student maturity.

The attitudes of those who stand on the two sides of what some wag has called the 'Snow line' is vigorously and amusingly described in the report[1]. "We are compelled to report that the ancient war between the engineering and the arts faculties still continues in a good many institutions, particularly the larger state universities, where the two faculties are frequently separated physically as well as spiritually. The arts faculty at such institutions still cherishes a belief that the engineer is a rough, uncouth fellow wearing boots and an open flannel shirt. His intellectual equipment consists of a transit and a slide rule. He has no manners, and he wants none. He pushes jobs through by beating up his men with his bare fists. His acquaintance with the

1. See page 4.

arts is limited to cheap movies, and his acquaintance with literature to comic books. He is crass, materialistic, insensitive. And it must be admitted that this picture appears to have considerable appeal for a certain type of engineer, who does nothing, in consequence, to destroy it."

"At the same institutions, the engineering faculty will give evidence that it regards the typical arts man as a pale, ascetic dreamer, forever in need of a haircut. He is devoted to modern art, modern music, modern literature, and he talks incomprehensibly about all three. He is addicted to books, and knows nothing whatever about science or mathematics. He is a thoroughly impractical fellow, probably a little pinkish politically, who gets by only because he has the gift of gab. And it must be admitted that this picture appears to have considerable appeal for a certain type of arts man, who does nothing, in consequence, to destroy it."

This is no occasion for amusement however. "The war between the faculties might be condoned as an example of good clean mayhem were it not for the fact that innocent bystanders too often become the chief victims. The sober truth is that the attitudes of the engineering faculty communicate themselves to engineering students. At institutions where the faculty exhibited the greatest belligerence about their colleagues in the arts faculty, we invariably found the greatest number of student complaints about the humanistic-social work. At institutions where the engineering faculty displayed a sympathetic understanding of the humanities and social sciences, student resistance to the program was at a minimum." ..... "If the engineering faculty are to hope for a maximum return from the time invested in a humanistic-social program, they must help provide a climate of opinion congenial to all serious intellectual inquiry. And the arts faculty, on its part, must display an understanding of and respect for the rigorous discipline involved in scientific and technical education. Neither of these necessary attitudes can be successfully faked, and this is but a further reason for our insisting that the point of departure for any genuinely useful collaboration between the two faculties must be the establishment of systematic means of communication." [Ibid., pp. 2, 3] This is not only a problem in the way

of the implementation of general education; it is an essential reason for the necessity for general education, and C.P. Snow [1959] has shown the seriousness of the gap between science and arts specialists and its implications for the scientific revolution and even for international peace[1].

How far do arts and engineering faculties support the principle of humanistic-social studies for engineering students? This point will be dealt with in the next section.

With regard to the content of general education programs, the ASEE committee has this to say. The humanities and social sciences must not be defined too narrowly. It is sometimes foolishly argued that an engineer "should be able to write well and speak effectively, that he should be able to win friends and influence people, that he should understand business problems and operations; [and that] therefore he should take courses in composition, technical writing, speech, applied psychology, and business administration." The committee does not deny -- in fact it firmly believes -- "that the humanities are, in a deeply serious sense, practical and useful. It believes that engineering educators have performed a valuable service to liberal education by their stubborn insistence that contemporary relevance[2] is the standard by which to judge any humanistic-social program." What the committee objects to is "an essentially frivolous definition of practicality that limits its attention to the development of a few surface skills, while failing to recognize that literature and philosophy and social organization are, like science itself, basic aspects of human activity in which depth of understanding provides the only sound foundation for the students' further growth." There must be a place in an engineer's curriculum for formal study of the humanities, the heart of our inherited experience, and of the social sciences as a record of social and political development and a guide to man's relations with his fellows. [Ibid., pp. 2 - 6]

Equally the engineer must be able "to organize thoughts logically and to express them lucidly and

---

1. See pages 4, 25, 26.
2. Compare the views of Venables on page 194.

convincingly in oral and written English." Here is met again serious dissatisfaction with students' command of English: 'dissatisfaction with actual results, possibly because results, or the lack of them, are more readily detectable here than they are in most other fields'; 'standard complaint'; 'staggering discrepancy between effort and results'. 'If the same amount of time and money and manpower were devoted, with such apparently disappointing results, to the teaching of any other subject in the curriculum, it would be regarded as a national scandal'.

The committee recognizes that this problem is by no means peculiar to engineering education, but suggests that engineers might well take a lead in the matter. Experimentation is necessary in establishing functional relationships between the work in composition and speech, and the work in technical courses as well as in humanistic-social courses. It would be valuable to capitalize on a student's knowledge and interest in his professional field by using materials from the history and philosophy of science, and the history of technology. [Ibid., pp. viii, 14]

In the final section of the report the authors reaffirm the recommendation of the Hammond report that the humanities and social sciences be given 'a minimum of approximately 20% of the student's educational time.' It is recognized that the time problem[1] is a difficult one. The committee believes that time may be saved by insisting on better English at school, or through non-credit remedial courses. Socio-humanistic courses should form sequences, thus saving time on introductions, and this is true too of the technical subjects, and the basic sciences. Time could be saved by improving the continuity and using the interrelatedness of subjects, and leaving out overlapping and obsolete material. [Ibid., pp. 42 - 49]

The 'time' problem is more fully discussed in the next chapter.

The second half of the report deals with excerpts from field reports, representative humanistic-social sequences at various institutions, courses of special

---

1. See the views of Professor D.G. Tucker (Electrical Engineering, Birmingham University) on page 176.

interest, and details of curricula at certain institutions showing credit hours for engineering subjects, basic sciences and mathematics, and socio-humanistic studies.

7.23. The study by Holstein and McGrath. [Holstein, 1960]

How far were the ASEE recommendations implemented in the years that followed its publication in 1956? Grinter compared the position in 1959 with that reported by him in 1955. He stated that, in addition to the 14% of schools which had strong programs prior to 1956, 60% of institutions had found it possible to increase the required or elective credit in the humanistic and social fields for engineers. Also in 1959, Gulette reported that altogether 80% of the institutions participating in these studies had either strong or strengthened programs in the humanities and social science. Holstein and McGrath think this exaggerates the position. It implies that only 30 (and probably fewer) of the 150, or so, accredited engineering schools in the United States have been content from 1954 to 1959 to coast along with meagre programs in the humanities and social sciences. "Definitely, it cannot be inferred that only thirty schools now have limited programs. The [Miller] catalogue study shows that at least half of the accredited engineering schools do not now meet the 20% recommendation of the ASEE. Clearly, however, attention to this problem over the past two decades by the ASEE has now produced a climate of defensiveness in many schools which make it increasingly difficult for them much longer to continue outmoded practices." Holstein estimates the fraction of time given to the humanities and social science on a national basis in 1954 to have been 17.8%. [pp. 93, 94, 73, 74]

The Engineers' Council for Professional Development unites the professional societies or institutes of chemical, civil, electrical and mechanical engineering; of mining, metallurgical, and petroleum engineers; the ASEE; state engineering examiners; and also the Engineering Institute of Canada. It lays down criteria of curricula for accreditation. Until 1955 it paid little attention to the incorporation in engineering curricula of the humanities and social sciences. The following is included in the 1959 annual report:

"Depending upon the definition of humanistic-social studies, the equivalent of one-half year to one full year [will normally be] the minimum content of the area of humanistic-social studies. Of this content, at least one-half year should be selected from such fields as history, economics, government, literature, sociology, philosophy, psychology, or fine arts, and should not include such courses as accounting, industrial management, finance, personnel administration, or ROTC." [ECPD, 1959, p. 30] Holstein points out that this, together with written and spoken English, would constitute about 14.5% to 16.5% of the total. If the E.C.P.D. enforced this standard (Canadian schools of engineering are excluded) about one quarter of accredited schools would be in default. "In the light of these facts the best that can be said is that after some ten to fifteen years the philosophy and recommendations of the Hammond reports of 1940 and 1944 have to some extent been embodied in the accreditation procedure ..... Whatever the reason for the [fifteen-year] gap between profession and practice, present and visible pressures will probably cause recalcitrant schools to consider now an adequate socio-humanistic program indispensable for continued approval and for status in the community of accepted engineering schools." [p. 95]

Engineering education provides a good field for the exploration of problems of general education which exist not only in engineering curricula, but in all undergraduate curricula. [pp. 55 - 61]

Horizontal or vertical?

Should general education requirements be completed in the first two years, or spread through all four? For the 'tandem' arrangement, the following arguments are advanced. Undivided attention can be given to general education. The pressure from professional subjects and related studies is eased. 'Late choosers' have more opportunity to explore various career possibilities. Professional studies come at a time of greater maturity. There are less time-table problems. As the junior college movement continues its fast growth, general education finds a natural home in the first two post-school years: the major professions would not wish their specialist work to be attempted in junior

colleges.

The arguments for concurrent study of general and professional subjects are stronger. It is essential to use students' vocational motivations to secure their interest in their studies. They resent a long wait before they may begin their professional work. It has frequently been stressed in these pages that the general must be seen in the context of the special, and the special in the context of the general. The student begins to feel a sense of professional esprit de corps; he is a member of his guild, and he will make a greater effort in his technical studies, and indeed in his general studies also if he feels they are an integral part of his professional curriculum. [McGrath, 1959a, pp. 50 - 59]

Two recent studies show the following percentage faculty preferences.

	Liberal Arts faculty	Professional schools faculty
Complete in first 2 years.	6.6	7.6
Spread evenly over 4 years.	21.2	51.7
Decrease gradually over 4 years.	46.5	30.4
Arrange by student and adviser.	23.7	-
Heavy concentration 4th year.	-	1.1
At convenience of students.	-	8.5

[Dressel, 1960, p. 25 and 1959, p. 18]

Elective or prescriptive?

Should general education courses be prescriptive or elective? Those who advocate election say that there is greater interest shown in subjects personally chosen. Teachers are kept on their toes because students will soon come to avoid poor and dull courses. A wider variety of courses makes it easier to keep a first-rate staff. Those who advocate prescription say that students often lazily choose easy options. They are not really able to judge the relative merits of various courses. Planning of curricula is most difficult in school and college without some prescription.

Depth or breadth?

Should general education courses cover many courses or few? Should the aim be breadth or depth? As Thomas has pointed out[pc], the opposite of breadth is

narrowness, not depth; and the opposite of depth is shallowness, not breadth. Breadth and depth are not mutually exclusive. Nevertheless, a wide coverage does tend to produce courses about a subject, not courses in a subject. 'Once-over-lightly' courses produce dilettantes; they certainly present no challenge to senior students. A few courses studied deeply develop maturity, and a sense of accomplishment.

Integration or tradition?

Should courses be inter-disciplinary, or regular departmental offerings? One of the main purposes of general education is to show the inter-relatedness of knowledge, and few specialist teachers can or do stress this. Interdepartmental courses, the traditionalists say, are kaleidoscopic, superficial, descriptive; the arbitrary synthesis of materials in integrated courses is artificial. The integrators reply that it is the segregation of the elements of reality into separate units which is artificial. This may be necessary for research, they say, but this is a poor basis for designing undergraduate curricula.

Separated or joint?

Finally should engineers, for example, meet with students of other interests for general education courses, or not? The 'isolationists' say it is valuable to meet the special professional needs and interests of students: history can become the history of technology; economics can be related to engineering; psychology can stress industrial relations. The reply is that students should have as much opportunity as possible of meeting with those of different interests, and that it is urgently necessary to break down occupational aloofness and insularity. [Holstein, 1960, pp. 55 - 61]

Conclusion.

Holstein and McGrath in their final chapters emphasize that one of the main issues in curricular policy in engineering schools centres in the question of how and to what degree the engineering subjects themselves can be made more general and basic. The striking figures quoted on page 61 for M.I.T. enrolments

are repeated here:

	1955/6	1956/7	1957/8	1959/9	1959/60
Engineering	612	572	521	491	431
Science	251	286	335	399	454

[Stratton, 1960, p. 44]

There may be many reasons for this tendency -- and the drop in engineering enrolments in the United States is a national tendency -- but evidently mathematics, physics and chemistry are becoming more important in terms of careers than are their application to engineering subjects. "In 15 years, electronics has leaped from the vacuum tube to the transistor to the maser and laser. In less than a generation, aircraft engineering has jumped from piston to jet to rocket and next to nuclear propulsion. So fast is all technology moving these days that by one estimate new engineering graduates can expect a professional half-life of only about ten years. Half of what they now know will be obsolete in 1973, and only half of what they will need to know is available to them at this time." [Time magazine, 1963, 3rd May, p. 54][1]

There is a tendency towards 'general' engineering degrees. Dr. Richard G. Folsom on the occasion of his inauguration as President of Rensselaer Polytechnic Institute in 1958 said: "As I study the trends and think of the future requirements with respect to engineering, it becomes apparent that in about fifteen years most of our outstanding colleges in engineering will have essentially one undergraduate curriculum with only a very limited amount of specialization."[2]

The significance of these points for these pages should be repeated. If general principles are all important for the job in life, are they not all important for the job of life? If there is a tendency to stress

---

1. For this reason the Alfred P. Sloan Foundation has given M.I.T. 5,000,000 dollars to retrain seasoned engineers, including top industrial engineers and engineering professors. Dean Gordon S. Brown, Dean of Engineering at M.I.T. says: "The professors furiously read technical journals, but sometimes even the stuff in the journals is two years behind." The Ford Foundation made a grant in 1959 of 19,500,000 dollars to ten universities, to modernize the teaching of engineering.
2. The University of the Witwatersrand in Johannesburg offers 8 different curricula, some identical in the first year, and 2 in the second year. [Witwatersrand, 1963, p. 132]

the underlying principles of mathematics, physics and chemistry for the profession of engineering, does a university not have an equal responsibility to stress the underlying principles of the humanities and social sciences to see beyond a man's privileges and responsibility in his career to his privileges and responsibilities in society?[1]

7.24. Contemporary attitudes: faculty, students, employers, and alumni.

This is the title of chapter 6 of the study by Holstein and McGrath. Two earlier studies in the McGrath series deal with faculty attitudes. The information provided below of faculty attitudes is given not only for engineering, but also for certain other professions which will be discussed later in this chapter. The first two tables below are from The liberal arts as viewed by faculty members in professional schools [Dressel, 1959], and the third from Attitudes of liberal arts faculty members toward liberal and professional education. [Dressel, 1960b] The full inventory is given on pages 63 - 68 of [Dressel, 1959], and on pages 6 - 13 of [Dressel, 1960b].

Percentages of faculty of professional schools agreeing.

Inventory statement	E.	J.	B.	M.	Ph.	N.
2. Liberal arts adapted to technical needs.	23.5	11.9	11.2	29.9	16.7	8.5
3. Require liberal arts, even if it means an extension in time.	36.5	64.2	56.0	48.1	62.5	56.3
4. Reduce liberal arts when conflict in time experienced.	21.7	8.0	9.0	28.5	16.7	10.4
6. Liberal arts students suffer in comparison with specialized students.	40.8	21.4	24.9	38.5	29.2	9.7
7. Specialized graduates lack imagination.	57.3	77.1	71.1	69.8	71.9	80.5
14. Bright technical students pick up liberal arts on their own.	34.6	10.0	11.9	25.4	29.4	8.8

1. See section 8.21.

Inventory statement	E.	J.	B.	M.	Ph.	N.
16. Specialized students best off with highly specialized curricula.	28.1	25.4	21.3	42.2	31.3	18.6
18. Liberal arts as specialized as technical courses.	34.1	23.9	33.9	26.2	26.0	23.9
20. Liberal arts professors unfair to technical students.	10.3	4.0	8.7	6.8	5.2	2.5
21. Liberal arts degree should precede technical training.	5.2	11.4	15.5	9.1	13.5	19.5
23. Students required to take excessive amount of liberal arts.	7.7	4.0	4.0	17.4	8.3	1.9
25. Liberal arts technical students poor employment chances.	10.4	6.0	11.2	21.4	6.3	4.4
26. Technical students should take liberal arts in related technical field.	15.0	21.9	13.0	39.0	30.2	16.0

(E.= Engineering. J.= Journalism. B.=Business. M.= Music. Ph.= Pharmacy. N.= Nursing).

[Dressel, 1959, p. 15]

The numbers above are not consecutive because the items chosen are part only of a longer list of questions. The questions were sent to deans of 182 colleges, who distributed them to 6000 individuals. 3400 replies were received in good time, and 500 later. Average responses from <u>all</u> professional schools to other questions follow:

Inventory statement	Yes	No	?	X
1. All students should be required to take liberal arts courses.	97.4	1.1	1.2	0.1
9. People with both liberal and specialized training better off vocationally.	85.5	6.3	6.9	0.6
10. Every professional curriculum should have some liberal arts courses.	93.2	3.7	2.8	0.1
15. Liberal values as well achieved through technical courses.	15.1	64.6	18.7	1.0
17. Combination of liberal arts and specialized courses destroys values of both.	4.8	88.8	5.7	0.3

Inventory statement	Yes	No	?	X
19. Every post-high school program should offer general education.	85.3	6.9	5.8	1.4
22. Liberal education should be postponed for adult education.	2.6	90.4	5.6	0.7
24. Students should take more liberal arts courses.	26.5	56.2	15.5	0.5

(Yes = agree. No = disagree. ? = concerned, but undecided. X = indifferent). [Ibid., pp. 13, 14]

A similar study of the attitudes of liberal arts faculty members was made from 1,190 returns to 2,575 questionnaires distributed to 17 representative colleges. Respondents were more hesitant than in the former study, particularly as some liberal arts faculty members admitted to very limited knowledge of and little experience with professional curricula. [Dressel, 1960, 1 - 5, 31] The numbers on the left-hand side below are the numbers of the earlier study, for comparison with the two tables above. [Dressel, 1959, pp. 13, 14] The percentages in brackets are the percentages for the earlier study (where relevant), and are given for comparison.

Percentages from liberal arts faculty.

	Yes	No	?	X
1.	97.6	1.7	0.7	-
	(97.4)	-	-	-
2.	9.5	81.4	8.0	0.6
	(19.0)	(70.0)	-	-
3.	71.8	10.1	16.3	0.8
	(49.5)	(26.7)	(22.7)	-
4.	7.3	70.1	19.6	1.1
	(16.5)	(53.0)	(27.4)	-
6.	12.9	61.7	22.4	1.1
	(29.5)	(46.0)	(22.0)	-
7.	81.0	6.8	10.6	0.1
	(67.1)	(17.8)	(13.3)	-
9.	86.6	2.9	8.4	1.3
	(85.5)	-	-	-
10.	91.0	4.2	3.6	0.2
	(93.2)	-	-	-
14.	10.2	73.1	15.5	0.5
	(18.7)	(64.5)	(15.5)	-
15.	6.8	74.2	17.9	0.4
	(15.1)	(64.6)	(18.7)	-
16.	16.5	68.3	12.2	0.5
	(25.1)	(59.9)	(13.1)	-
17.	2.7	89.2	7.0	0.3
	-	(88.8)	-	-
18.	19.6	59.3	15.4	2.9
	(30.8)	(50.3)	(14.8)	-
19.	83.9	7.5	6.9	0.5
	(85.3)	-	-	-
21.	31.5	42.3	23.9	1.2
	(10.9)	(72.6)	(14.9)	-
22.	1.1	92.8	4.1	0.6
	-	(90.4)	-	-

[Dressel, 1960, pp. 15, 16]

(Yes = agree. No = disagree. ? = concerned, but undecided. X = indifferent).

What does 'general education' mean to engineers in terms of subject content? (It cannot be often enough stressed that general education means much more than the content of certain subjects).

Relative importance of eighteen disciplines as seen by 595 engineering professors compared with a total sample of 3,400 professors in nine professional areas.

The first column (1) shows what percentage of engineering professors would require or encourage each subject; the second (2) gives the figure for the total sample; the third column (3) shows the deviation of engineering professors from the average. Mathematics, physics and chemistry would not be defined as 'general studies' in these pages, as they are essential ancillary subjects. The purposes of including economics and foreign languages, and even English composition and speech, may or may not be to achieve breadth in education.

	(1)	(2)	(3)
English composition	97.5	98.6	- 1.1
Mathematics	96.5	81.7	+14.8
Physics	95.0	71.7	+23.3
Chemistry	91.5	70.6	+20.9
Economics	83.5	73.8	+ 9.7
History	79.4	86.1	- 6.7
Speech	77.1	79.0	- 1.9
Literature	70.2	77.2	- 7.0
Foreign language	64.4	65.4	- 1.0
Philosophy	57.0	68.1	-11.1
Psychology	56.2	73.1	-16.9
Political science	54.4	62.8	- 8.4
Sociology	42.4	64.6	-22.2
Biology	30.8	64.7	-33.9
Religion	20.0	28.6	- 8.6
Art	17.5	36.8	-19.3
Physiology	14.0	45.8	-31.8
Music	11.4	32.1	-20.7

[Holstein, 1960, p. 104]

It is worthy of note that the social sciences appear lower in the list than history, literature and philosophy -- with the exception of economics, and certainly economics is often, perhaps usually, chosen because it may contribute to professional competence.

Holstein had personal interviews with one hundred members of engineering and liberal arts faculties. He found that engineering professors had 'a widespread lack of insight into, and genuine appreciation for, the

work of scholars in the humanities and social sciences', and certainly little realization that rigour may be equally demanded in these disciplines. He ends with the pessimistic statement that 'preoccupied specialists beget preoccupied specialists; departmental intolerance breeds intolerance, and indifference to broad academic problems propagates indifference'. [Holstein, 1960, pp. 106, 107]

He had interviews also with seventy students, and found them sometimes unaware of the purposes of the inclusion of the socio-humanistic courses in their curricula. Freshmen indeed are often surprised at their presence in a curriculum, but juniors and seniors showed more interest, and great regret at their earlier disinterest. Perhaps seniors could persuade freshmen better than some faculty members! Of 'most valuable' courses students named either those favouring skills such as composition and speech, or those favouring the humanities such as philosophy and literature. As a group students hold courses in the social sciences in lowest esteem. Students preferred challenging courses, not courses which were too easy, or a rehash of high school work, which they could have managed 'on their own'. Often courses are judged more on the quality of the teacher, than the content of the subject matter. The vast majority of students interviewed held the view that their instructors in technical engineering subjects were either ignorant of, or indifferent to, general education. Students were however able to quote liberal arts professors who 'looked down their noses' at students in professional schools and on the instruction they received in those schools. [Ibid., pp. 107 - 110]

Holstein dismisses the attitudes of employers and alumni. Top management extols the virtue of a broad and liberal education, but their recruiting officers look for fledgling engineers with technical skills. The typical alumnus has probably not had a broad education himself. He nostalgically claims that his own curriculum was the ideal one, and deprecates all deviations from it.

The actual thus lags far behind the ideal -- behind the views of the leaders of industry, and even those of the professional engineering educators. These paragraphs may provide some reasons for the fifteen year

gap, as exemplified by accreditation practice of the Engineers Council for Professional Development mentioned above.

7.25. General education and architecture.

Architectural education in the 19th century was much affected by French influence, since many members of the profession received part or all of their training at the École des Beaux Arts. Professional education in architecture in the United States began in 1865 at the Massachusetts Institute of Technology. By 1881, Illinois, Cornell, Syracuse, and Columbia, had entered the field. By 1953 the number had grown to 64, of which the National Architectural Accrediting Board accepted 45. Various thinkers pleaded for more 'cultural' subjects. The course was lengthened, and by 1932 half of the architectural schools had adopted a 5-year curriculum. [Sanders, 1955, pp. 1 - 5] The following table gives the average content of 38 curricula in architecture, accredited in 1951 - 52. [Ibid., p. 11]

Subjects	5 years	6 years	7 years
Professional	62.8	57.7	64.5
Professionally related	9.6	10.2	4.2
Maths. and physical science	11.3	11.9	10.3
Social sciences and humanities	8.3	10.3	16.8
Communication arts	4.1	1.7	1.4
Biology	0.3	-	-
Other liberal arts electives	3.6	8.2	2.8

(The figures in the column under '5 years' give average percentages for 33 5-year curricula; under '6 years' for 4 6-year curricula; under '7 year' for 1 7-year curriculum).

The Commission for the Survey of Education and Registration of the American Institute of Architects (Chairman: Dr. E.S. Burdell) reported in two volumes: [Bannister, 1954] and [Bellamy, 1954].

The values of a full or partial collegiate program in liberal arts are recognized: facility in expression, breadth of cultural education, a better capacity for logical thinking. Because of the length of architectural studies, and the consequent cost, few colleges insist on a pre-professional liberal education. It is suggested that such studies might be pursued in secondary school or through adult education. [Bannister, 1954, p. 136]

The report recommends, in addition to professional

and technical subjects and the necessary mathematics and science, 'general knowledge and skills' to include the following:

(i) Considerable facility in writing and speaking for precise, lucid, and forceful communication.
(ii) Considerable facility in precise, logical and concise thinking; making valid assumptions; assembling and verifying data; deriving principles; using abstract concepts; recognizing significant factors; and drawing just conclusions.
(iii) Basic knowledge of the social sciences, especially history, sociology, economics, and government.
(iv) Basic knowledge of the humanities, especially philosophy, ethics, and the history of ideas.

[Ibid., p. 139]

"The architecture curriculum, therefore, despite the press of technical needs, should offer opportunity for general cultural education. Some schools prescribe specific subjects; others provide electives restricted to the humanities and social sciences. Perhaps 10 per cent might be arbitrarily set as a just proportion for this purpose. This would offer the possibility of several general courses of standard length ..... Although the proportion just suggested may seem small, it should be remembered that courses in architectural history may well be counted among cultural studies. The inclusion of such courses would raise the cultural content of the curriculum to more than 15 per cent, and this proportion compares very favorably with the non-major part of most college curricula today." [Ibid., p. 147]

This artificial increase of 'general cultural education' from 10% to 15% by means of a subject which is in the curriculum because of its professional relevance in any event confirms the impression that the architectural profession in America does not take general education very seriously, as a whole. This impression is obtained also from the second volume: references to liberal education are more often than not reasons why it cannot be extended. This volume contains one often-quoted comment by Dr. Walter Mathesius: "It is my conviction that the essential objective of a higher education in engineering or architecture should certainly be not the graduation of specialists but the building of good citizens equipped with fundamental knowledge and trained in logic. Completing his college studies should not be the end but rather the foundation

for the young engineer's education for life so that he will step out into the world able and eager to broaden his scope or, if he should desire later on to do so, to concentrate on a narrower field in which he might then become a specialist because of years of experience and not because of educational limitations." [Bellamy, 1954, p. 122]

Walter A. Taylor, who was director of the Commission which produced these two volumes, writing about five years after the Conversations across the nation took place says that "the great breadth of education and understanding required of one in the successful practice of architecture presents a serious problem. It is acknowledged on every hand that a strictly specialized curriculum as a means of educating the professional architect is not adequate in these times of increasing complexity of life and greater interdependence in human relations. While the technical and professional content is not to be underrated, instruction in other subjects broader in character should also be provided to the end that architects may deal intelligently with matters outside their field and be competent to appraise their professional work in its relation to society and to other professions."

"Although most schools are constantly reviewing curriculums and methods, there is a strong feeling that occasional adjustments and internal reforms will not solve the problems of professional education in architecture, the complex of the time span, the professional content, and the general content. It is believed that there should be a reexamination and major reorientation of the whole philosophy and structure of higher education, undertaken seriously, objectively, and cooperatively by educators concerned with administration, the liberal arts, and the professional field. Such a study and program would have as its objective the intent that every degree holder should be educated as well as trained, without further prolongation of the process. It is believed that such a study would find, in the traditions and experience of architectural education, constructive principles potentially beneficial to both professional and general higher education." [Blauch, 1955, p. 43][1]

1. This article shows that pre-professional education is a prerequisite for admission in 14 schools of architecture: 1 year in 4, 2 years in 8, and 4 years (i.e. a Bachelor's degree) in 2. [Ibid., pp. 39, 40]

7.3. GENERAL EDUCATION: LAW.

The five stages of medical education discussed on page 36 are paralleled in many professions. [McGrath, 1959a, p. 33n] McClain [Blaunch, 1955, pp. 109 - 116] shows that law office training, by means of apprenticeship, was the common route until the late 1800's. The next stage, proprietary law schools, seriously impeded the development of sound legal education. From 1815 to 1870 law schools were established with university affiliations. The course of study covered one year, and no educational entrance requirements existed. Instruction was severely legal, and lawyers clung tenaciously to the belief that education in law involved no more than a mastery of a craft. The American Bar Association in 1921 recommended 2 years of college study, and 3 years of full-time law school study or 4 years of part-time law school study. By 1940, in all but a few states, these standards had been adopted by legislative action or court rule. The Association recommended 3 years of college from 1952. Some law schools have a 4-year curriculum, and they admit students after 2 years of college. The total period is usually six years.

The American Bar Association, through its section on Legal Education and Admissions to the Bar, is generally recognized by public authorities and others as the accrediting body for law schools. The Association of American Law Schools also wields great influence in the field of legal education by prescribing for schools the conditions for the obtaining and retaining of membership of the association, but it makes no concerted effort to gain acceptance of its standards. [Blauch, 1955, pp. 109 - 116] It made the following recommendations[1] with respect to pre-legal education in 1952.

A. Education for Comprehension and Expression in Words

The purpose here is to gain both perception and skill in the English language. Language is the lawyer's working tool. He must be able, in the drafting of legal instruments, to convey meaning clearly and effectively. In oral and written advocacy he must be capable of communicating ideas convincingly and concisely. In reception no less than in expression, language is fundamental as the lawyer's medium of communication. For the lawyer must be able to grasp the exact meaning of factual statements and legal instruments, to catch the fine points of legal reasoning and argument, and to comprehend the technical materials which constitute the body of the law. To acquire sufficient capacity for communication calls

for extensive practice in all phases of the art. Truly, the law-trained man, if he is to perform effectively the tasks expected of him, must be a precisionist in the use of language.

What is needed, therefore, is the skill which can be obtained only through practice in:

1. Expression: adequate vocabulary, familiarity with modern usage, grammatical correctness, organized presentation, conciseness and clarity of statement in writing and speaking.
2. Comprehension: concentration and effective recollection in reading and listening, perception of meaning conveyed by verbal symbols.

Both expression and comprehension also require a developed sensitivity to:

3. Fluidity of language: varying meaning of words in different times and contexts, shades of meaning, interpretive problems, hazards in use of ambiguous terms.
4. Deceptiveness of language: emotionally-charged words, catch phrases, hidden meanings of words, empty generalizations.

B. Education for Critical Understanding of Human Institutions and Values

The purpose here is to develop insight into, rather than merely information about, the institutions and values with which man is concerned. One pursuing a legal career encounters all sorts of these institutions under circumstances in which his conduct necessarily shapes the conduct of others in their value choices: examples are marriage and the conduct of parties to it; business and the actions of sellers and buyers, stockholders and directors, employers and employees; government and individuals concerned with or subject to taxation, regulation of trade practices, and development of atomic energy; private property and its protection and utilization. The lawyer is a force in the operation and shaping of these institutions. It is vital that he perform his work with a consciousness that his conduct counts in the choice of preferable means and ends. This insight comes from intensive study for a substantial period of such of the following areas as he may feasibly undertake, rather than from attempts to skim all the large areas listed. "Study" includes dealing with people in these contexts and reflecting upon the experience thus gained.

Important to the gaining of this insight would be a grasp of:

1. The nature of man and the physical world of which he is a part: stimuli which move him to action, internal and external limitations upon the development of understanding and reason, man's ability to plan conduct and the function of value choices in his planning.
2. The economic systems of societies: theoretical foundations, imperfections in practice, business patterns, the function of governmental processes in economic control.

3. The political organizations of societies: basic theories, modern complexities, the relation of politics to law.

4. The democratic processes in Western societies, especially: responsiveness of governmental policy to popular will, art of compromise, role of education and discussion, functions of majorities and minorities, methods of reconciling competing interests, requirements for participating effectively in world society, degree of efficiency self-government permits, awareness of the moral values inherent in these processes.

5. The social structures of societies: functions of individuals and groups such as the family and churches, implications of the service state, governmental processes in social control, control of the atypical person.

6. The cultural heritages of Western societies, including philosophy and ethics: freedom for the individual; traditions of humility, brotherhood, and service; inevitability of change and the art of peaceful, orderly adaptation to change.

C. Education for Creative Power in Thinking

The purpose here is to develop a power to think clearly, carefully, and independently. A large part of the work the law-trained man is called upon to do calls for problem-solving and sound judgment. This is true regardless of whether he devotes his life to the practice of law, to governmental administration, or to being a judge, legislator, teacher or scholar, or to some other endeavor. He will be called upon to create or give advice concerning an almost infinite number of relationships. These relationships may range from a comparatively simple contract between a buyer and seller of goods through tailoring a highly complex corporate structure to the needs of a business or non-profit organization. Any task to which he will be called can be done better if he possesses this power of creative thinking. Predicting the outcome of even routine litigation may involve considering whether a hitherto well-settled rule of law which is applicable would, in the light of the particular facts of the case, possibly be modified or reshaped to avoid unfairness and practical inconvenience. Here, the power to think creatively will often merge with critical understanding of human institutions and values, with the latter serving as the necessary threshold to creative power.

Creative power in thinking requires the development of skill in:

1. Research: awareness of sources and types of material, adaptation to particular use, methods of fact presentation.

2. Fact completeness: willingness to recognize all facts, avoidance of preconception and fiction masquerading as fact, disciplined ability to withhold judgment until all facts are "in."

3. Fact differentiation: relevance of facts to particular issues, varying importance of different facts, relative persuasiveness of various facts.

4. Fact marshalling: reduction of masses of fact to manageable proportions, arrangement of facts in logical and convincing order.

5. Deductive reasoning: use of the syllogism, spotting logical fallacies, avoiding conclusions flowing from inaccurate premises.

6. Inductive reasoning: experimental methodology, accuracy of observation, elimination of variables, role of hypotheses, conditions essential to valid generalization such as adequacy of sampling, strict limitation of conclusions by available reliable data.

7. Reasoning by analogy: methods of classification, gradations of relationship, finding resemblances which justify inferences of similarity.

8. Critical analysis: disciplined skepticism in approach, thoroughness of inquiry, keenness of mind in cutting through to essentials.

9. Constructive synthesis: systematic formulation of principles, meaningful organization of ideas, structural relationship of concepts.

10. Power of decision: resolution of discoverable issues in the light of short and long term ends found preferable on explicitly identified and justified grounds.

With the foregoing in mind the application of the above objectives and recommended pre-legal program in the light of their controlling principles and limitations can be suggested briefly. A particular undergraduate student's reasoning processes may better be developed at a particular institution, for example, by work with a specified teacher of biology than with another teacher of logic, his understanding of cultural heritages may be deepened more by some then available courses in literature than by ones open to him in religion, his facility in comprehension and expression in language conceivably strengthened as much or more by work with a history teacher as by some studies in speech or English composition, and his capacity for the handling of facts increased as well by the study of zoology as by the study of sociology, all according to the circumstances obtaining at the particular college and the background of the individual student. In sum, the program of pre-legal education which is here earnestly suggested is to be secured through such courses and other work as the student's vital interests, his counsellor's judgment as to the quality of instruction, and the facilities of the particular undergraduate school or college dictate in each individual case, considering the development of the student as of the time relevant decisions as to his pre-legal program are to be carried out.

[AALS, 1952, pp. 110-114][1]

---

1. See a similar analysis in general terms in section 9.11.

7.4. GENERAL EDUCATION: MEDICINE, DENTISTRY, PHARMACY, NURSING.

7.41. General education and medicine[1].

The major study of this matter is contained in Preparation for medical education in the liberal arts college by Severinghaus, Carman, and Cadbury. [Severinghaus, 1953] Dr. Harry J. Carman was the director of the study.

The authors contend that "it is not the primary function of a liberal arts college to prepare students to make a living. The special skills needed in our society can be learned elsewhere, often on the job. But to many teachers this point of view is utterly foreign ..... The Committee was impressed by the extent to which narrow vocationalism dominated the minds of many students in our colleges of liberal arts. The students have little or no conception of the meaning of a liberal education; they have come to college to prepare themselves to earn a living." [p. 9] This ideal is difficult to achieve since most colleges recognize the pre-medical student as such, by way either of special curricula or special fraternities and other organizations. (There is outspoken opposition to such segregation, for example, at Princeton). Special curricula, or special treatment within a course, or required majors (biology or chemistry, for example) may crowd out the humanities and social sciences. Such students often reveal a notable lack of sound grounding in general education and little or no real understanding of moral and spiritual values. [pp. 14 - 15]

The authors find it necessary to recommend "that if there is a premedical committee and especially if the committee helps to set educational policy, it should include representatives of the social sciences and the humanities as well as the physical and biological sciences." [p. 44] It is only too well recognized in America that there is often a difference between the ideals of 'catalog rhetoric' and actual practice. The authors find it necessary also to recommend 'that medical schools should act in accordance with their statements urging a liberal

---

1. See McGrath's analysis of the history of medical education on page 36.

education, and that students and advisers should believe them and act accordingly', and that 'medical schools should not preach one gospel of admissions and practice another'. [pp. 65, 83]

"Considering the influence for good which a wise and well-educated physician can be in the community, a doctor who is culturally ignorant would be more of a menace than another ignorant person whose position commands less respect. The physician without broad education who enters into the life of his immediate neighbourhood, be it large or small, can exert an influence which is not in the best interests of himself or of society." [p. 67]

114 institutions collaborated in this study. "The program taken by the average pre-medical student in at least twenty-five ..... does not represent a fair example of a liberal education, and in about thirty others it is only barely adequate." In view of the strictures which follow, it may be well to remember that this implies that half of the collaborating institutions did have adequate programs. [p. 68]

The following words were no doubt written by Carman.[1] "Vocationally and technologically we are the wonder of the world, but if measured by the demand for high character, political fitness, an acquaintance with the past, broad sympathies, and a disinterested understanding of the springs of human action, we have fallen far short of our potentialities. The social, political, and aesthetic incapacity of the person without a balanced education and trained only in the techniques of his work or profession is likely to be appalling." Vannevar Bush, a scientist and not a moralist, is quoted as saying: "The mastery science gives of energy and of material things may send our race careening to its doom unless we gain the wisdom and sanity to control our course ..... To build this wisdom into the hearts of men is the great task of liberal education." There is too much cultural lag between the work of the scientists and those who make use of their labours. Howard Mumford Jones expresses it tersely: "To keep scientific theory in one compartment and economic and social studies of a technological culture in another

---

1. See a similar statement by Carman on p. 25.

compartment is precisely the tragic error of our education and of our culture." [pp. 70, 71]

The study of Severinghaus, Carman, and Cadbury was made primarily from the point of view of the medical school. It encouraged Oberlin College to undertake a study of the same problem primarily from the point of view of a liberal arts college. Much of the study is of domestic importance to Oberlin undergraduates. It stresses, however, the point that the 'time' problem may be alleviated if liberal education is thought of as a continuing process into medical school, instead of as something 'to be over and done with' in the first two college years. A person who goes to medical school after three years in college may be as liberally educated after two years in medical school as an Oberlin graduate. But it is necessary to abandon the fiction that liberal education is complete when the student leaves college. At medical school, instead of a hiatus in his life, during which he is supposed to think of nothing but medicine, (and is, in fact, in danger of becoming unable to think of anything else), the student would have a continuous experience with the humanities and the social sciences that would become more meaningful with his increasing maturing and professional growth. [Oberlin, 1957, p. 99]

There is great competition on the part of the students for admission to medical schools; the best-known schools may receive 10 to 20 applications per place. Overall, in 1958, 49% of applicants (about 8,000 in 16,000) were accepted. It is interesting to note the statement in the Oberlin report, however, that there is competition on the part of the lesser-known medical schools for the brighter students: such schools tend to reduce their pre-medical requirements. [Ibid., pp. 13 - 26]

Most colleges at least provide a one year course in each of English, natural science, social science and the humanities. Other colleges provide two years of such courses, including a foreign language. The authors recommend work <u>at a mature level</u> in the humanities and the social sciences, as in the biological and physical sciences. They oppose a sharp and sudden division at the end of the first two years between general and special education. Liberal education, they believe, should be extended into pre-college work and into the

medical school.

Only thus, they believe, will the physician grow emotionally as he needs to do "in order that he may deal effectively with the sick, the anxious, the frightened. In every medical problem, there is a sociological and psychological as well as a biological component. The physician to be fully effective must be equipped to meet the social and emotional needs of the patient, the family, the community. In our educational objectives the development of the emotional and social maturity of the human personality should have high place. ..... It is not enough that the physician understands man and society in conventional terms. Since the human relationships in which he is engaged as a physician are motivated in large part by pain and fear, he must have an understanding beyond the conventional of the motivations of human behavior." The authors quote Paracelsus with approval, for whom sapientia was the 'greatest and highest of all qualifications of a physician ..... without which all his learning will amount to little or nothing'.

Anderson shows that in point of fact, of entrants to medical schools in 1953-54, 70% had bachelor's degrees. [Blauch, 1955, p. 137] In 1958-59, of 86 medical schools, 1 required 2 years of college work for entrance, 77 required 3 years, 8 required 4 years; 46 recommended 4 years. Of the 12 Canadian medical schools, 9 require 3 years (or grade XIII plus 2) of college for admission. 3 require 4 years and a bachelor's degree. Regardless of the number of years required, out of 86 U.S. schools, 9 require a bachelor's degree and 53 recommend it. [AAMC, 1958-59, pp. 6, 199] The number of schools requiring, or recommending as electives, various courses follows. (Canadian figures appear under C.)

	Numbers of schools requiring courses		recommending electives	
	U.S.	C.	U.S.	C.
Total number of schools	86	12	86	12
Humanities				
Art	0	0	10	1
English	72	8	4	1
French	0	1	0	0
Language (classical)	1	1	12	2
Language (modern foreign)	21	5	27	1
Language (class. or mod.)	10	1	0	1
Literature	14	4	31	2
Music	0	0	9	0

	Numbers of schools requiring courses		recommending electives	
	U.S.	C.	U.S.	C.
Philosophy	1	2	36	5
Speech	0	1	23	0
Other humanities	1	3	29	4
Social sciences				
Economics	0	0	27	3
History	4	3	38	5
Political science	1	0	22	3
Psychology	5	3	38	4
Sociology	1	0	41	3
Other social sciences	1	1	10	2

[AAMC, 1958-59, pp. 8,200]

"The whole area of verbal skills is the most frequently cited weakness found among medical applicants, even those who may have completed the required number of semester hours. The skills of written and oral communication are vital for the physician in general or specialty practice, in teaching, and in research -- that is why a student who knows he is weak in reading, writing, and speaking should try to make up his deficiencies, in real terms and not in terms of semester hours. The same is true of overcoming weaknesses in quantitative skills, and it might be well to keep this in mind in choosing college electives." [AAMC, 1958-59, p. 7] "In recent years a number of medical schools have recognized that the tendency of pre-medical students to take a preponderance of scientific courses in college has been carried to undesirable limits, and they have eliminated such additional requirements in an effort to encourage prospective students of medicine to acquire a broad general education. Practically all schools advise students not to pursue courses in college that will be required in medical school." [Blauch, 1955, p. 137]

An assessment of Liberal education and American medicine was made by Bunnell of the Institute of Higher Education. In spite of discouraging statements, he says, the Severinghaus report does not in fact present a pessimistic picture. The emphasis is in fact not on whether, but on how. "As far as the authors are concerned, the desirability of liberal education for physicians is a foregone conclusion. Unlike the writers of the 1932 report of the Commission on Medical Education, they do not feel the need to argue the case for liberal

education at great length. Instead, the emphasis in their study is on the methodology of liberal education. Their chapter headings reveal a concern for such aspects of the liberal arts college program, as, The Advisory System, Liaison Between College and Medical School, A balanced Education, Majors and the Culminating Year, Some Ventures in College Education, The Teacher and His Methods, and Influences Outside the Classroom. The authors imply that their most important function is not to argue in behalf of liberal education, but rather to produce recommendations for the improvement of the premedical program." [Bunnell, 1958, p. 335]

7.42. General education and dentistry.

The first dental school in the United States was founded in 1840. This was the Baltimore College of Dental Surgery, and it was, in point of fact, the first in the world. Many of the dental schools established before World War I were proprietary schools, calculated to make profits for their owners. The elimination of the proprietary school led to the absorption of dental education by the universities. 12,516 undergraduates in 1953 had the following pre-dental training: 2 years 22%; 3 years 27%; 4 years without degree 6%; bachelor's degree 42%; master's or other advanced degree 3%. [Blauch, 1955, pp. 61 - 63]

The Commission on the Survey of Dentistry in the United States says:

> "Since 1940 the Council on Dental Education of the American Dental Association has required two years of predental work, a year less than is required of students for many other professions, including medicine. The predental course emphasizes those sciences which will be of value in the four years of professional dental education which follow.
>
> The Commission finds no fault with the quality of the science work generally offered, but it is disturbed that the typical dental student enjoys so little exposure to the humanities and the social sciences which every university graduate should have if he is to be called educated. Since the predental curriculum is already crowded with necessary work, there have been many proposals to add a third year of preliminary work to dental college entrance requirements, stipulating that the additional work be in the humanities and social sciences. In point of fact, 80 percent of dental school applicants even now have completed three years or more of preliminary work. In most cases, however, the additional year has been devoted to

still more science when it might better have been devoted to the humanities and social sciences.

The Commission is not convinced that it would be wise at this time to make three years of predental work mandatory. Better results might be obtained by a redistribution of the courses required in the predental years and in the dental school curriculum itself, in some way guaranteeing the dental student a continuing exposure to fields of thought outside his future profession. The problem seems to be one that can best be worked out through experimentation by university administrations, in collaboration with dental faculties, and the Commission urges that this be done.

The existing dental curriculum itself, the work which the student takes during his four years of professional education, suffers most from lack of what might be called 'vertical integration'. That is, too little effort is made to show students how the basic science they study during their first two professional years will apply to the clinical work they will be doing in their last two years. Similarly, too little effort is made during these last two years to draw upon the basic sciences studied earlier. As a consequence, in many schools, basic science is regarded by students as simply an annoying hurdle to be surmounted before they get on with what to them is the real business of dentistry -- clinical work. Under these circumstances it is small wonder that many of today's dentists have a handicraft concept of their profession. The remedy for this general fault may well lie in a reappraisal of dental education in the light of the modern concepts in periodontics. [Dentistry, 1960, pp. 44, 45]

In 1959, the 47 American dental schools reported some 150 vacancies in their freshman classes. [Ibid., p. 41]

7.43. General education and pharmacy.[1]

As in medicine and dentistry, proprietary schools provided pharmaceutical education to a considerable degree in the nineteenth century. These schools were closely tied to the apprenticeship system. Elementary school was usually the admission requirement, and classes were held in the late afternoon and evening on three days a week. More than half of pharmacy students before 1900 had no more than one year of such education, as they were able to meet legal requirements without spending two years in college. In 1908 satisfactory completion of at least one year of work in an accredited high school was required for admission. Two years were required from the year 1917-1918. Graduation from high school was required in

1. See page 37.

September of 1923.

The first state university college of pharmacy was established in the University of Michigan in 1868, and by 1900, there were 14 such institutions.[1] Financial support from the states made possible the introduction of higher entrance requirements and more rigorous programs of training. Calls for liberal education however were rare. Admission to pharmacy schools could be obtained after one year (i.e. the first of four) in a high school. Little general education was thus provided in school or college.

The length of the course was increased to 3 years in 1925, and in 1932 to 4 years. Even however in 1957, as the colleges prepared plans for a fifth year, Harold G. Hewitt, President of the American Association of Colleges of Pharmacy, expressed concern that not enough attention was being given to the claims of liberal education. 'Today there seems to be a general agrement that the five-year curriculum should provide students of pharmacy with the equivalent of at least one year of liberal studies'. [Newcomer, 1960, pp. 20 - 24] The American Council on Pharmaceutical Education requires courses in the humanities and social sciences for accreditation, but does not specify how much. [ACPS, 1960, pp. 19, 20]

Pleas for the inclusion of liberal education date from about 1925, and were described with the following five-fold purposes. Firstly, professional competence will be increased, as this depends on creative leadership, and not on technical skills. Every pharmacist has to face a problem of professional morality as business man and as professional practitioner: a liberal education enables the pharmacist to see beyond vocational and financial consideration. Secondly, liberal education brings social competence. 'The pharmacist is a member of a society, as well as of a pharmaceutical society'. The important Committee on Curriculum of the American Association of Colleges of Pharmacy expressed the view in 1947 that there should be opportunity for the study of political science, history, psychology, philosophy, languages, the humanities and fine arts. Thirdly

1. The first schools, established by local associations of pharmacists were: Philadelphia College of Pharmacy (1821) and New York College of Pharmacy (1829). [Blauch, 1955, p. 179]

pharmacists must look to personal effectiveness. 'One of the great tragedies of our pharmaceutical inheritance is the fact that the pharmacist has been willing to let someone else do much of his thinking for him'. One of pharmacy's most pressing needs is for creative leadership. Perhaps in meeting this need, liberal education can perform its most significant function. Fourthly, liberal education brings with it academic efficiency, because students are better able to handle the technical studies of pharmacy if they approach them with a rich background of general education. Fifthly, the status of a profession may well be increased if its educational programs include general studies. This point is discussed with respect to medicine and pharmacy on pages 36 to 38. High entrance demands, and broad curricular requirements attract the brightest students, and so the best student material goes to other professions. Many American university administrators tend to place pharmacy in a low category because it is not based on adequate pre-professional education.

"Today, the average college of pharmacy devotes nearly 90 per cent of its curriculum to courses which are either basically scientific or technical. Only slightly more than 10 per cent of the curriculum, therefore, can be used to provide the nonprofessional studies which pharmacy's greatest educators have considered crucial in determining the status of the profession. This small proportion of liberal studies in the humanities and the social sciences is the most urgent problem with which those responsible for the education of future pharmacists must deal." [Newcomer, 1960, pp. 26 - 35]

The 5 year program came into effect in all schools of pharmacy from the fall of 1960, and the last four-year class graduated in 1963. The 5-year plan may be a segregated 1-4 or 2-3 plan, or an integrated 0-5 plan. The latter means that all the time is spent in a school of pharmacy. 1-4 and 2-3 imply one or two years in a liberal arts college, or in a junior college. With the growth in the number of junior colleges, -- many nearer home for students -- the 1-4 or 2-3 patterns will grow in number. All students in schools of pharmacy must have a period of apprenticeship, usually one year in length.

The following table shows the mean percentages for

22 colleges of pharmacy while engaged on the 4-year program, and of 12 colleges of pharmacy following a 5-year program.[1]

	Liberal arts[2]	Semi-profnl. or supporting	Profnl.	Elec.	Misc.
4-year	10.8	38.0	46.2	2.9	2.6
5-year	14.3	37.5	39.9	6.1	2.2

[Ibid., 1960, pp. 39, 102]

Newcomer, Bunnell and McGrath studied the curricula of twelve 5-year colleges in detail, and their conclusion follows:

> "The most apparent change under the five-year program is the increase in nine of the twelve colleges studied in the amount of required liberal arts instruction. All but three of the twelve provide greater opportunities for electives. Both these developments enable students to extend their intellectual interests beyond the limits of their vocational activites. Yet when the percentage of increase in nonprofessional instruction in some institutions is weighed against the fact that in the four-year program some pharmacy students took only one subject (English composition) other than pharmacy and the related sciences the change has not been as impressive as might have been hoped. The majority of colleges can hardly claim that they have used the fifth year to increase substantially the general education of pharmacists -- the need for which was advanced as one of the primary justifications for a longer course of study. Evaluation of the benefits in terms of a broader education resulting from this extension of professional education will be impossible for at least five years. Only after the transcripts of the first graduating class have been analyzed will it be possible to determine whether the electives, sometimes very generously provided, have been used by students to intensify or reduce the high degree of specialization in the four-year program. Some of the policies already adopted are not reassuring on this matter." [Ibid., p. 113]

At least the fifth year makes an adequate program of general studies possible. The position in the 22 colleges, while following a 4-year curriculum, was much more difficult.

> "The average possible total of liberal arts study amounts to about one out of the total of eight semesters. The pharmacy student can typically take only elementary courses in one or perhaps two liberal arts disciplines. By and large he is prevented from going deeply or broadly into any subject other than basic science or pharmacy. In view of the complexity of modern

---

1. There are 77 colleges of pharmacy accredited by the American Council on Pharmaceutical Education.
2. Sanders [1954c, p. 9] gives the following figures for 69 4-year programs: social sciences and humanities 7.2%, communication arts 4.5%, additional liberal arts electives 1.4%.

> life and the bulk of modern knowledge these figures do not give any assurance that the average graduate of these representative institutions receives the type of broad education required either to meet his professional obligations or his civic responsibilities." [Ibid., p. 47]

The attitude of faculty members in pharmacy schools is shown in the table on page 320 . This deals with only 13 out of 26 items. Newcomer, Bunnell and McGrath comment that it appears that there is little material difference between the attitudes of pharmacy faculty and all professional faculty, but where there is, pharmacy faculty members favour more, not less, general studies than their colleagues in other professional schools. Possibly these views are coloured by the long debate as to whether and why the course should be extended to five years. Personal interviews led the authors to feel that there might be more agrement in theory than in practice. [Ibid., pp. 66, 67]

The following comparison of the attitudes of pharmacy teachers, all professional teachers, and liberal arts teachers, with regard to some of the other questions will be of interest. (See page 321).

	Pharmacy	All professional	All liberal arts
1.	97.9	97.4	97.6
9.	93.8	85.5	86.6
10.	94.8	93.2	91.0
15.	12.5	15.1	6.8
17.	5.2	4.8	2.7
19.	84.4	85.3	83.9
22.	2.1	2.6	1.1
	[Ibid., pp. 68, 69]		[Dressel, 1960, pp. 15, 16]

Nearly 100 students were interviewed.

> "The typical student of pharmacy manifests few of the attitudes towards the purposes and values of learning which characterize the liberally educated man. [He] comes to his higher education out of a family background of limited intellectual and cultural opportunities -- probably with considerably fewer advantages than students, for example, who enter medicine or the law. Moreover, his prior formal education lags considerably behind the student in these two professions both in quantity and diversity, particularly with respect to his contact with the various humanities and social sciences . ..... Students' attitudes on this subject tend to reflect very sharply those of the academic staff. When faculty members speak disparagingly of liberal arts courses, or even of the instruction in their own professional field which stresses theory rather than practical rule-of-thumb methods the result is unfortunate. Students then see little value in, and often

> exhibit condescension or outright hostility toward studies not directly related to the everyday practical activities connected with the management of a drugstore . ..... The need to make money while studying, family responsibilities, living at home and commuting, and failure to take advantage of the broader contacts available in extra-curricular activities and the cultural benefits of lectures, concerts, and art exhibits are factors which limit the scope of education for many pharmacy students. For many these are the inescapable conditions of life if the student is to get a higher education at all, and they are not without advantages in maturing the individual earlier than would otherwise be the case. In any event many of these circumstances of life outside the classroom cannot be materially changed in the early future. Hence, it is all the more necessary that the formal education required for admission to the profession include a generous portion of instruction designed to extend their intellectual and cultural experiences and most importantly cultivate the favorable attitudes toward this type of learning which will guarantee further growth after the completion of schooling." [Newcomer, pp. 94 - 96]

Finally the authors point out a further difficulty.

> "The historical and the current evidence shows unmistakably that the practitioners in pharmacy, notably those employed in drugstores, have as a group restrained faculties from moving into more basic theoretical instruction and the supplemental liberal arts education. The Association of Colleges of Pharmacy has made energetic attempts to extend and enrich the undergraduate curriculum. The Association can continue these efforts to great advantage now that the five-year course of study is a reality." [Ibid., p. 96]

7.44. General education and nursing.

Leone and Vreeland provide a full statement on nursing education in [Blauch, 1955, ch. 18] At that time there were 1,100 basic diploma or degree granting schools of nursing, all approved by their respective Boards of Nurse Examiners. In 1949, the National Nursing Accrediting Service was formed, with the aim of improving standards in nursing schools. On 1st January, 1954, 228 schools were fully accredited -- 53 offering bachelor degree programs, and 175 offering diploma programs. The NNAS grants temporary accreditation (which does not mean provisional or conditional approval) to schools taking part in the national self-improvement program. 659 schools had temporary accreditation -- 45 leading to a bachelor's degree, and 614 to a diploma. (Some schools offer both

programs). The basic degree program in colleges and universities takes 4 to 4½ years. About 150 colleges and universities offer basic degree programs. Basic diploma programs in hospital nursing schools take 3 years. There are also practical nurses (or vocational nurses) and attendants, who follow a one year course, and nurse aides with on-job training. 'Graduate nurse' does not mean 'a nurse with a bachelor's degree'. There were 375,000 graduate nurses (not all registered) in 1954. More than 200,000 practical nurses, attendants and nurse aides are employed in hospitals, and an unknown number outside hospitals. [Blauch, 1955, pp. 152 - 158]

Russell [1959] provides the latest survey of this subject. Most educators in the nursing profession wholeheartedly subscribe to the value of liberal education, as is evident from a study of the table on page 320.[1] There are inadequacies in nursing education, and opponents of change, but Russell is optimistic that wise counsels will prevail. One of the problems is the tendency to name as general studies, subjects such as home economics, pharmacology, public health, history of nursing. Certainly professional subjects may be taught in such a fashion as to bring out their liberal content; but, without this intention, to call professional subjects general is a subterfuge. Excessive requirements in the natural and behavioural sciences reduce the general studies. Undue emphasis on professional competence means that professional not general studies are chosen as electives. Russell therefore recommends four semester courses in the humanities (in philosophy, literature, poetry, art, and music), and at least one year in the social sciences (history, government, economics, and international affairs). The fact that the behavioural sciences are to be found in any event in nursing curricula, tends to prevent the recommendation of a two years sequence in the social sciences, which Russell advises.

Russell ends on an optimistic note.

> "Nursing education is now obviously ready to take quick and long steps toward the goal of a more liberal education for nurses . ..... By making the values of liberal education central in its educational program nursing can show the public that something more than a skilled

1. 43.4% of the nursing faculty members who answered the Dressel questionnaire were prepared to reduce the scope and content of professional courses to provide for more liberal arts subjects. But only 19% thought their colleagues would accept such a step. [Russell, 1959, p. 82]

> specialist is needed to serve the nursing needs of modern society ..... A democracy needs specialists trained not only in the skills of daily practice, but also in the free exercise of their minds, in the readiness and ability to criticize, and in the willingness to act morally in accord with the truth as their conscience dictates." [Russell, 1959, pp. 116 - 149]

7.5. GENERAL EDUCATION: BUSINESS ADMINISTRATION.

In 1953-54, one in six first professional degrees or post-graduate degrees was in business administration. One in three was in teaching, and one in eight in engineering. After teaching then, business administration is the professional aim of more university students than any other. [Blauch, 1955, p. 16][1]

The Wharton School of Finance and Commerce at the University of Pennsylvania is recognized as the first school of business administration at the college level. It was established in 1881, and had no rivals until 1898, when the universities of Chicago and California established schools.

In the late 1950's there were 581 divisions, departments, and schools for undergraduate business studies. In addition, 158 schools offer a master's degree in business, and 29 award doctorates in business. [Pierson, 1960, p. 7] Nine were exclusively graduate schools requiring a bachelor's degree for admission: Carnegie Tech., Chicago, Columbia, Cornell, Harvard, New York University, Stanford, University of Virginia, and Dartmouth. They neither require nor encourage undergraduate work studies in business, with one exception [Gordon, 1959, pp. 27, 31]. Kozelka states [Blauch, 1955, pp. 49, 52] that of 173 undergraduate and 6 graduate schools, 76 were members in 1954 of the de facto

1. Degrees conferred in all fields, 1953-54 -- 358,699. Total degrees conferred in professional fields -- 221,605. Degrees conferred in specific professional fields -- teaching (mostly women) 74,846; business administration 36,164; engineering 27,127; law (LL.B. or higher) 9,670; music 7,889; medicine (M.D. only) 6,757; nursing 5,593; pharmacy 4,107; dentistry (D.D.S. only) 3,102; journalism 2,492; architecture 1,784.

   The above professions are mentioned in these pages. The figures for professions not mentioned (over 800 only) are -- home economics 8,082; accounting 8,012; agriculture 7,181; theology 5,289; medical sciences 2,621; social work 2,354; military or naval science 1,843; library science 1,730; forestry 1,061; veterinary medicine (D.V.M. or higher) 827.

accrediting agency, the American Association of Collegiate Schools Business. AACSB has resisted the encroachment of professional training on general education by holding its members to a minimum of 40% of the 4-year program. Much of this is received in the first two years of the liberal arts college or school of business administration. "There is general agreement on the necessity for a foundation of general education or humanities, but this must be safeguarded from erosion by the insistent demands of the specialists. The growth of specialized associations within business will increase the demands for fragmentation of the curriculum."

That it is important to define general education closely will be evident from the following statement.

> "The undergraduate schools present various patterns of curricula. Some require two years of liberal arts, others allow students to major in business and commerce for four years and 'integrate' these courses with liberal arts. For accreditation by the American Association of Collegiate Schools of Business, the college must require 40 per cent of non-business courses, although the definitions are lenient. And in the business colleges the arts and sciences are frequently taught with great tolerance for the students' distaste for them, or with a self-conscious effort to relate them to the day-to-day problems of commerce; e.g., writing business letters in English composition. The college must also require a core of business studies -- instruction in economics, accounting, statistics, business law, finance, marketing, and production or industrial management.
>
> A business major at Boston University can fulfill his elective liberal-arts requirements by spending a little under a fourth of his time on mathematics or general science, literature and English composition, foreign languages, or social sciences. For about half his time he will study the A.A.C.S.B.'s core courses on other "basic" requirements. He may then top off with, for example, direct advertising and mail-order selling, advertising campaigns, sales and market research, research, retail-store engineering, modern wholesaling.
>
> He will also have some time to range where his fancies take him in free electives. The catalogue describes courses that will show him 'how to sway listeners', or make clear to him 'the psychology and philosophy of women, using practical material to help those in supervisory positions to a more practical understanding of the female employee', or point out to him 'what to know and what to avoid in purchasing a restuarant'. These are, indubitably, nourishing subjects, as is a course at Boston University in 'sex attraction, mate selection, and courtship'. The question is whether the nourishment is of the mind. The

classical educators would think not. Quite a few business-college deans agree with them.

But businesses-- e.g., advertising, real estate, comptrollers' associations -- the deans say, keep trying to push narrowly specialized courses at them. Since an employer ordinarily doesn't begin to get a return on a new employee in less than two years, he figures correctly that he is saving money by having the schools do the training.

The deans, well aware of the fact that the business community after all is their market, have taken the easiest way out by spreading an educational smorgasbord."

[Norton Taylor, 1954, p. 112]

The purpose of the article in Fortune, from which this extract comes, was evidently to titillate the reader's taste. Two serious studies were sponsored recently by the Ford Foundation [Gordon, 1959] and the Carnegie Corporation of New York [Pierson, 1960].

Gordon and Howell recommend:

"that not less than half of the four-year undergraduate program be devoted to general education and believe that considerably more would be desirable. This minimum of 50 per cent is higher than what most undergraduate schools now require, and higher also than the minimum (40 per cent) specified by the American Association of Collegiate Schools of Business.

While the precise figure of 50 per cent is obviously arbitrary, it is easy to demonstrate that less than this is clearly too little. Our case for at least this much of general education rests not on some vague notion of a total amount of liberal education that is ideal, but on an actual inventory of the cultural and preprofessional subjects that a competent and responsible businessman in a democratic society should have. This inventory is listed in detail in Chapter 8 and adds up to about two full years of college work or a bit more. Even this presumes a better secondary school preparation than that with which many students now enter college. In our opinion, anything less than this is unacceptable, not only because the student as a future citizen needs this much of a cultural background but also because at least this much is necessary to provide the base of cultural and preprofessional subjects on which his business training should be built."

[Gordon, pp. 133, 134]

The AACSB minimum of 40% allows economic principles and economic history to be included in either the 'business' or the 'general' group of courses. Other courses in economics must be called 'business' courses. Gordon and Howell analyzed the curricula of 37 Association members and found 38% were violating the 40% rule, even if economic principles and economic history

were always counted as non-professional.[1] 'Business English' and 'Business mathematics' were counted as professional, and physical education and R.O.T.C. as neither.

The authors outline the values for the business student of a study of the humanities, the natural sciences and mathematics, and the behavioural-social sciences. Values for business students differ little from values for any other students; a few points only, therefore, made by Gordan and Howell are given here.

First of all is met the usual agreement on the urgent need for better 'communication' skills. 'Complaints about the ability of students to write, read, and speak effectively are not new nor are they limited to business students. But we cannot ignore this problem simply because it is a chronic one of which everyone is aware....' The authors go on to say: 'After competence in English, the area of greatest concern is probably mathematics'. The authors are not however suggesting 'remedial' English or mathematics,; where neeced, this must be taken without college credit. Their objects are the positive objects of the authors of the Crowther report in their plea for literacy and numeracy. (See page 245)

Gordon and Howell would like to see a one-year course in the natural sciences, and a one-year course in the biological sciences. They realize that time will not permit this, and accept one year of either, if the other has been studied in high school.

It might have been expected that the behavioural-sciences -- psychology, sociology and anthropology --, would be given prominence in business schools. Only one-eighth of 74 schools required a course in sociology, and one-fourth in psychology. There were none which required a course in anthropology.

The authors' recommendation for the minimum general education program for undergraduate business students follows:

Subject	Semester Courses	Semester units or hours
Humanities and fine arts	8 - 9	24 - 27
English language and literature	4 - 5	12 - 15
Humanities and fine arts electives	4	12

1. The figures for a sample of schools which are not members of the Association was 37%. The figure was 50% as reported to the Carnegie survey, in replies from 422 schools or departments of business. [Gordon, 1959, pp. 151, 153]

Subject	Semester Courses	Semester units or hours
Natural sciences and mathematics	4 - 8	12 - 24
Mathematics	2 - 4	6 - 12
Natural sciences	2 - 4	6 - 12
Behavioral-social sciences	8	24
Behavioral sciences	2	6
Economics - elementary	2	6
Other social sciences	4	12
Total general education component	20 - 25	60 - 75

[Ibid., p. 173]

60 semester units represent half of a four-year course. The authors thus recommend at least two years of general education out of four, or five if courses are to be lengthened.

The authors stress again that their recommendations exclude advanced economics, vocational skill courses in shorthand and typing (which should not in any event be offered for degree credit), and non-university level courses such as are frequently offered in business mathematics and arithmetic, business letter-writing and English, and commercial geography. By 'psychology' the authors do not mean 'industrial psychology'. 'Mathematics' does not mean 'commercial arithmetic'. [Ibid., 148 - 175]

For purposes of comparison, the suggested professional base or 'core' for undergraduate business students is here given:

Subject	Semester Courses	Semester units or hours
Organization theory and management principles	2	6
The market environment and functional management Finance Marketing Industrial relations Human relations Production or operations management	3 - 5	9 - 15
Information and control systems Managerial accounting Statistical analysis and related topics	3 - 4	9 - 12
Advanced economics Aggregative economics Managerial economics	2	6
Legal environment of business	1	3
Integrating the management viewpoint Business policy	1	3
	12 - 15	36 - 45

This represents about 40% of the four-year curriculum, leaving about 10% for electives, and 50% for general education. [Ibid., pp. 209, 210]

Business schools face some serious criticisms:

> "that business programs attract students of inferior academic ability and are therefore not really at the college level; that the academically superior students in business programs often find little to challenge them even in the more advanced courses; that employers prefer preparation in liberal arts to specialized business programs. Even graduate business programs are charged with being unduly narrow, yet those few that require broad preparation in certain non-business fields are questioned by advocates of the more traditional, specialized graduate program. It is no wonder, therefore, that the post-World War II phase in the history of American business education has been one of reassessment and reorganization ..... In intelligence, among 20 undergraduate fields, business administration graduates, as a group, rank 15th ..... [They] tend to come from families with somewhat less education and income than students majoring in liberal arts ..... This may be one of the reasons why business students place greater value on the vocational aspects of college work and choose specializations of quite practical, first-job value ..... The small group of schools that now maintain high standards of admission cannot satisfy the demand of either the students seeking admission or the employers seeking their graduates. Both graduate and undergraduate schools must raise their standards of admission if they are to meet these demands alone. Most undergraduate business schools are located at public universities which are committed to accept any graduate of an accredited high school within a given state or region ..... [Such] should screen students carefully at the end of their freshman or sophomore years. As courses acquire more analytical content and become more difficult, the least able will be excluded from university programs, but other institutions -- the junior and community colleges and technical schools -- are well qualified to offer them training in applied business subjects."[1]
>
> [Pierson, 1960, pp. 8 - 10]

The authors of the Pierson study believe that 50% to 55% of the work required for graduation should be outside the business school instead of the present 25% to 40%: a two year standard liberal arts program should be required of all business undergraduates. Even business school faculties express serious reservations

---

1. About one-fourth of all full-time students enrolling in an institution of higher education for the first time enrol in some type of two-year college, generally known as junior colleges. [Ibid., p. 68]

about the high proportion of a student's four years given to business studies.

There were in 1960, 12 separate graduate schools of business and 146 other schools and departments which offer graduate business instruction. The serious state of education for business administration in the latter schools is shown in the following quotation:

> "The two-year master's programs, leading usually to a Master's in business administration (M.B.A.), embrace the majority of graduate business students. Although they are similar in their general core and major requirements, they differ markedly in philosophy, methods of instruction, content, and student and faculty ability. They tend to group themselves by concentration on specialized studies, on a combination of specialized and general studies, and on general studies in business administration. Except for their intensive specialization, schools in the first group are indistinguishable from undergraduate schools, and in many cases the work is of lower quality. The intent is to provide specific skills for specific lines of work for students who frequently hold part-time or even full-time jobs. Programs of this type -- really vocational training in trade techniques -- belong in night schools or community colleges and certainly do not qualify students for any advanced degree."
>
> [Ibid., pp. 26, 27]

The work of the best schools, which number 'no more than ten at most', is above reproach. These, exclusively graduate schools relate students' studies to managerial decision-making in two years of full-time graduate study, which is not highly specialized.

The significance of these pages for this discussion of education in business administration is that, recognizing the low prestige of business education and degrees, the authors of two authoritative reports believe that the best hope for improvement of standards and standing lies in more general education, not in less.

7.6. GENERAL EDUCATION: JOURNALISM.

Luxon in [Blauch, 1955, pp. 102, 103] shows that the history of schools of journalism is complex. So too is the present situation with regard to accreditation; not only schools are considered, but also sequences. For example, of 39 schools accredited in 1951 by the American Council on Education for Journalism, 36 were accredited for the 'news-editorial sequence', and 13 for only this one sequence. 'Currently there appear to

be about 100 schools and departments of journalism in the United States ..... Accurate data on enrollment ..... unfortunately are not available'.

This Council emphasizes an ideal ratio of 75% of liberal education to 25% of journalism. This may sound very strange to non-American ears. The majority of students do not go on to further study on graduation; they obtain thus a professional qualification in journalism with one year of work in four in their own field. Indeed Hutchins expressed doubt as to whether journalistic subjects deserved a place at all in a university. He was not opposed to journalists having the broadest and most liberal education, but he did not approve of the inclusion in university curricula of training in the tricks and techniques of the trade. [Dressel, 1960a, p. 25] Examples are: copy reading, typography, photography, picture editing, radio news writing, sports coverage, sports writing, women's departments in newspapers and magazines, advertising salesmanship, classified advertising, and television advertising production.

In practice, the amount of journalistic course-work often exceeds 25%, due to the enthusiasm of individuals who want more time for their particular sequences, usually heavily loaded with techniques. This is especially true of teachers in the radio and television sequences, more so than with those concerned with news-writing and editorial phases of journalism. [Ibid., p. 93] Schools vary greatly in liberal arts requirements, and in all cases the use of electives is a vital consideration in determining the actual extent of the student's contact with the liberal arts. Furthermore, the journalism courses themselves may well contribute to a liberal education, through courses, for example, such as 'The law of the press', History of journalism', 'The press and society', 'International news communications', 'The foreign press', 'Interpretation of contemporary affairs','Communication media'analysis', and 'Theory of mass communications'. Dressel emphasizes [pp. 86, 87] that 'journalism courses should be so taught as to have a strong liberal content in the sense that they provoke a spirit of enquiry, relate knowledge from many fields, and encourage further research as needed to attain a depth of insight before attempting to interpret events'. For this purpose a general and liberal education is practically a

professional requirement. "This ..... view of journalism regards it as a broad area of applied liberal arts aimed at helping liberally educated individuals to understand what is going on in the world about them and enabling them, in turn, to communicate this in an insightful way to other individuals. In this view the journalist is the broadly educated individual who becomes aware of many of the issues of his time, to the point where he personally feels that he must have a deeper insight into these and must communicate to others his convictions as to the necessity of attention to them..... There is some point to the view that an individual really does not know his field well until he can begin to write and talk about it in such a way as to be understood by others. Following this line of thought, we come to the possibility that well-planned professional journalism courses provide the student with a kind of experience which, in many ways, is more nearly consonant with the aims of liberal education than what we, in fact, find in most liberal arts colleges." [Ibid., p. 87]

It was suggested in chapter 4 (page 181), that general studies approved by the authors of the Linstead report <u>because of their vocational relevance</u> was pseudo general education. The use of 'history of architecture' to boost the percentage of liberal studies from 10% to 15% (page 326) was called 'artificial'. Is there an inconsistency in the claim that professional journalistic studies may provide a liberal education? It depends on the way in which the professor goes about his teaching. He can make professional studies entirely specialist in purpose. He can, and should -- and this is the ideal for <u>every</u> specialist field -- so discuss professional subjects as to bring out their place in the whole of knowledge, and their relatedness to the parts of their whole. This way lies wisdom.

7.7. <u>GENERAL EDUCATION: MUSIC.</u>

It was noted on page 345 that, in terms of number of degrees granted in professional fields, music was 7th in 1953-54. It is not generally realized outside the United States to what extent universities, colleges, and schools make provision for orchestras, bands, choruses, a capella choirs, operatic and chamber groups. Church musicians are in demand. Many smaller cities

and all large cities have their own orchestras. Television and radio programs rely heavily on music. There is thus considerable demand for teachers of music, although the number of musicians who can make a living from performance only is small.

Degrees in music are offered in professional schools or conservatories, schools of fine arts, teachers colleges, and liberal arts colleges. 'The problems of curriculum content are acute and complex in music. In the college, divergent viewpoints exist concerning the balance in the music curriculum between liberal arts subjects and professional courses, between general and special fields'. Much time must be devoted to practice for would-be performers, and much time is devoted to pedagogy for would-be teachers. Little provision is therefore made for general education in music curricula.

Since music graduates have little general education themselves, having followed intensely specialized courses with little understanding of interdisciplinary relationships, they are unable to use music as it should be used in the general education of students in all of the other fields outside of music. [Blauch, 1955, pp. 144 - 151; article by Choate]

Of the nine professions investigated in the Dressel study [1959], music faculty members were least favourable to liberal studies. (Nursing and journalism were the most favourable). This reflects the views of their professional associations. The National League of Nursing Education in 1950 established a 50-50 division between professional and 'general collegiate' studies. The American Council on Education for Journalism endorses the ratio of 25% of professional courses to 75% of liberal arts. The National Association of Schools of Music operates on a ratio more the inverse of this, and does not always enforce even this. Many music schools scale the non-professional part of the program down to the minimum, and include 'history of music' in this part. Many music school faculty members would prefer to decrease the liberal arts work in their curricula. 'The non-professional requirements in music are pitifully low'. [Wager, 1962, pp. 104, 105, 206]

This then is the situation in a profession with so many national bodies that the Wager report bristles

with initials. The varied requirements of education in music result in many different schedules. State certification of music teachers is 'chaotic'. [Ibid., p. 206] Performance time and the needs of pedagogy make inroads on curricula which are heavily vocational in purpose.

7.8. GENERAL EDUCATION: TEACHING

"Conflicts over the education of elementary and secondary school teachers stir the nation. These controversies revolve principally around two issues. Critics contend (1) that teacher-preparation institutions impose excessive requirements in pedagogy, particularly in methods courses and practice teaching, and (2) that the broad liberal education of future teachers is consequently restricted." These are the opening words of a monograph entitled Are school teachers illiberally educated? [McGrath, 1961]

Howard Mumford Jones was Chairman of a 'Committee on the teaching profession of the American Academy of Arts and Sciences', which reported On the conflict between the 'liberal arts' and the 'schools of education' in 1954. What is the history of this conflict? [Jones, 1954] "During the recent past the criticism of our public schools and our institutions for the training of teachers has assumed a degree of vehemence which, whether justified or not, reveals dangerous schisms in the cultural life of the nation." Tensions have been building up since the turn of the century. The modern trend towards specialization has resulted in much of educational policy and of the training of teachers being left to specialists. Even before the turn of the century, an influential National Education Association Committee of Ten under Eliot, had given "equal value to each subject recommended for the curriculum ..... [and thus began] a trend toward mechanical 'counting up' and towards the atomization of subject-matter irrespective of its intrinsic value." The effects of Eliot's elective system at Harvard College reinforced this tendency. Eliot overlooked "the fact that the normal lad of fourteen to eighteen will always avoid subjects that require hard thought and much expenditure before they yield returns, in favor of those which require no greater mental effort than memory, and

pay prompt dividends in achievement."[1] [Ibid., pp. 17 - 22] The causes of the alienation are described as follows.

(1) From the time of the N.E.A. committees (about 1893) to 1950, the number of pupils in high schools increased from 700,000 to 7,000,000, and the fathers or grand-fathers of many were immigrants.

> "Whereas at the end of the nineteenth century the secondary school population was still relatively homogeneous, coming from about the same family backgrouns and with vocational interests not necessarily academic but nevertheless tending toward the preferred echelons of society, the high schools of today harbor young people with I.Q's running from close to that of the moron up to one of highest intellectual promise. The existing vocational interests of these boys and girls cover the whole gamut of our immensely diversified vocational life. Also, many students remain in high school not because they like it and want to learn, but because they need a parking place between adolescence and the time when modern mechanized industry finally agrees to employ them. It is unrealistic to believe that these young people can be attracted (or even educated in the way the nation has a right to demand) by exercises in abstract 'thinking'. Half of them leave school after the tenth grade; and the remaining half, if our information about prevailing opinions among teachers is correct, participate much more passively than actively in their own education. They may be potentially good citizens, but their interests lie outside, not inside, the school. Considering all these difficulties, one should be careful in assessing criticism of the 'anti-intellectualism' of the American school and its teachers. There may be financial or other reasons for the 'drop out', but one reason is certainly that the last grades of high school, despite all adjustment to average or even below-average intelligence, are still too abstract and verbal for a large part of our youth. Like it or not, the American high-school today is not merely a scholastic institution, it is also a social institution."
>
> [Ibid., pp. 22 - 23]

(2) There was at the same time a profound change in the philosophical concepts of the nature of man and of education, stemming from William James and John Dewey with their new philosophies of pragmatism, instrumentalism, and experimentalism.

> "Pragmatism emphasized the concrete over and above the abstract problems of life; it showed the significance of social institutions and the evolutionary character of societies and their ideologies. In fostering 'progressive education' it also inspired the professionally interested teacher with the hope that through the introduction

1. Quotation from MORRISON, Samuel E., Three centuries of Harvard, (Harvard University Press, 1942), p. 389.

> of these experimental methods he might have an increasing chance for developing initiative in more challenging situations, rather than merely conveying year after year the same subject matter, irrespective of the interest of the students. As always is the case when ideas suddenly spread over a large group, they become diluted and are taken out of context. Such statements as 'effort follows interest', which is essentially correct, may not always have been conducive to the understanding of the necessity of effort." [Ibid., p. 24, 25]
>
> "Pragmatism is as much in need of continual criticism as any other school of philosophy. When popularized by untrained teachers it may lead toward one-sided and relativist interpretations of human existence; and under the guise of the fight against older dogmatism there may develop another dogmatism, ignorant of the wealth and depth of ideas on which our culture is based." [Ibid., p. 30]

Pragmatism, in fact, as the authors of the Harvard report [p. 40] have pointed out may sometimes not be pragmatic enough, especially in the hands of disciples with more enthusiasm in action than profundity of thought.

(3) This new philosophical approach was accompanied by a different approach to psychology. Thorndike rejected the older introspective psychology, and substituted a new emphasis on experiment. He and Woodworth published their studies on transfer[1] in 1901.

> "The notions of mental machinery which, being improved for one sort of data, held the improvement equally for all sorts; of magic powers which, being trained by exercise of one sort to high efficiency, held that efficiency whatever they might be exercised upon; and of the mind as a reservoir for potential energy which could be filled by any one activity and drawn on for any other -- have now disappeared from expert writings on psychology. A survey of experimental results is now needed perhaps as much to prevent the opposite superstition; for, apparently, some careless thinkers have rushed from the belief in totally general training to the belief that training is totally specialised."[2]
>
> [Ibid., p. 26]

(4) Binet and Stern were developing the 'testing movement', which, wisely used, does inestimable good in selection particularly, both in schools and in industry. The promise of quantitative evaluation led teachers 'to forget the intangibles of individual development and also those precious values in civilization not now accessible

---

1. See section 9.13.
2. Quotations from THORNDIKE, E.L., Educational psychology, Vol. II., The psychology of learning, (New York, 1925), p. 364.

to the quantitative approach'. [Ibid., p. 27]

(5) Schools face criticisms of 'anti-intellectualism'. They have, in fact, been forced to take over many of the functions of the family, the church, and the community as a whole.

The conclusion of Howard Mumford Jones, Francis Keppel, and Robert Ulich follows.

> "The main condition for improving the relation between the departments of education and the university would be the avoidance of early specialization among the students of education, psychology, and the social sciences in general. There has been a tendency to forget that segregation of educational and social questions from the totality of human civilization and from the deeper aspects of the person may lead to pseudo-solutions and distorted interpretations of human problems. Therefore, education and the adjacent social studies, as a special professional endeavor, should be based on a broad liberal training which permits comparisons of phenomena, criticism of methods, and insight into the intangibles of human life. Only such students should be allowed to train future teachers who themselves have developed a fine sense for human values and a knowledge of their systematic and historical aspects. Of course, similar demands should also be made with respect to those who specialize in the 'older disciplines of thought' or in the natural sciences. The good teacher and scholar will always be the one who is able to see his special field of interest within its wider context."
>
> [Ibid., p. 38]

McGrath and Russell set out, in their study referred to above, to answer three questions.

(1) How much instruction in pedagogy are prospective teachers actually required to pursue? The answer is: elementary school teachers -- about 36%, and secondary school teachers -- about 17%. "Not all this professional instruction at either level, however, is classifiable, as the critics contend, as 'methods'. A considerable percentage in each instance includes instruction in such basic subjects as the history and philosophy of education and psychology, which if properly taught contribute as fully to the achievement of the proper goals of higher education as do other subjects generally found in the liberal arts curriculum."

(2) How broadly is the intending teacher educated in the liberal arts disciplines, especially as compared with undergraduates outside liberal arts colleges? "Students in some professional schools ..... receive on the average two or three times as much technical,

vocationally related instruction as those intending to become teachers. ..... Many departments of education are modest in their specialized requirements."

(3) How does the specialized professional instruction in the education of teachers compare in quantity with vocationally-oriented instruction in other undergraduate professional schools? "To the extent that requirements in the broad range of liberal arts disciplines and electives are a function of a liberal education, teaching is again distinctive among the professions studied. The mean requirements in the 'general' category vary all the way from 4 per cent in music to 36 per cent in secondary and 39 per cent in elementary education. In so far as breadth of higher education is a factor, the teachers clearly have a more comprehensive knowledge and a greater variety of intellectual skills to deal with the complex problems of modern life than do the average graduates of other undergraduate schools." [McGrath, 1961, pp. 1, 25, 26]

Many of the criticisms of the education of teachers, McGrath shows, result from a failure to examine a representative selection of schools, and then from quotation of extreme cases. It may be true that the teaching profession attracts too few of the highly competent intellectually, but this is due to the relative attractiveness of other professions, both as regards financial reward and general prestige. "The facts in this study suggest that those who continue to search for the shortcomings in our educational system exclusively, or even primarily, in the excessive emphasis in schools of education on 'methods' courses and in the limited liberal education of our teachers will be using a fiction to come to grips with a reality. This exercise will not only be unrewarding. In terms of our urgent national need for teachers and a strengthened program of elementary and secondary education it will also be a disservice to our country." [Ibid., p. 28]

Griswold shows that in the face of a rapid increase in school population, the supply of teachers is declining. Why, he asks, has the United States allowed its population to outrace its educational resources? "There is no reason more significant than the decline of the liberal arts as a force in our national educational system ..... The prevailing tendency is for the colleges

to blame the schools for these deficiencies and for the schools to blame the colleges. Although primary responsibility rests with the schools -- for liberal education must begin in secondary school if it is to take place at all -- the colleges must bear their share of it." The colleges (and here he is talking of all undergraduate colleges, not of teachers colleges only) are allowing the vocational subjects to crowd out "the studies which for two thousand years, throughout western civilization, have been esteemed as the key to the good life and all true academic achievement."

One fifth of the nation's youth goes on from high school to college, but this group includes only half of those best qualified for such education. Of the top quarter in intellectual ability, 20% do not continue for financial reasons, and 40% (a fraction equal to that which does go further) do not continue for lack of motivation. Why? Because their parents and teachers were not steeped in liberal education. In this essay entitled Liberal education is practical education Griswold says: "Though we cannot produce a magic formula that will relieve the shortages of schoolrooms and teachers, we can do a number of things that will contribute to those results. Above all I would name two: first, we can maintain the liberal arts in the fullest possible health and vigor in our colleges, and second, we can capitalize them as a motivating force in American education by massive transfusions of the liberal arts into the training of secondary school teachers." [Griswold, 1959, pp. 9 - 15]

CHAPTER 8.

THE CHALLENGE OF GENERAL EDUCATION.

8.1. If the purposes and practices described in previous pages are in any degree convincing, then the challenge is presented to introduce general education where it is not found, as in South Africa, and to increase opportunities for general studies in countries where only limited provision is made.

The first problem which arises is the difficulty of finding time in overcrowded curricula. Is student time, class by class, being wisely used? Are buildings and equipment, year by year, being wisely used?

Secondly, opponents of the introduction or extension of general education say that more should be done at the secondary school level, and by means of adult education. Little or no time need then be spent on general education during university days. Just why the impressionable undergraduate years should be the very years to be avoided is a question seldom faced.

Thirdly, an attempt is often made to escape the challenge of formal general education by suggesting that students can attain its benefits by other means: living in residence, or student activities, or lecture series, or the cultural influence of a good home.

Fourthly, other difficulties of implementation or expansion must be considered, and particularly the main difficulty of all -- to find and to keep staff.

8.2. THE PROBLEM OF TIME.

Whitehead once said: 'The whole problem of intellectual education is controlled by lack of time. If Methusalah was not a well-educated man it was his own fault or the fault of his teachers'. If intellectual education is hampered by lack of time, it is a problem of our own making. Education is a continuous process from the pre-school stage to the primary stage and the secondary stage of school, and then to the tertiary stage of university and college at the undergraduate and post-graduate levels; and at whatever stage a man ceases formal study, his education will have been less than successful if he does not continue his own education

into adult years, on the job and during leisure hours. To put more into any stage or level than can be done with efficiency and enjoyment, and some 'stretching', is either bad organization, or bad coordination of the various stages and levels.

A story is told, probably apocryphal, of a State conference in the United States of educationists of all levels -- elementary, junior high, high, junior college, undergraduate, graduate, and post-graduate. They were engaged in a 'self-study' to find out what were the weaknesses of their State's educational system. At the end of three days the chairman was asked to sum up. He said: "After long days of long speeches, I can confine my summing up of your elaboration of the weaknesses of education in this State to three words: 'the previous stage'." Have educationists, men of intellectual standing, nothing better to offer than blame of the stage below? If so, the disdain of the leaders of commerce and industry for the 'egghead' intellectual may well be justified.

In the last resort educationists must decide what is important at every stage of education, and they must see to it that it can be completed there. The difficulty is that Professor X may know very well what he would like for his own subject, but Parkinson's Law operates in the academic world just as it does in the administrative world. Time can always be filled up, and soon claimed to be overfull. His very enthusiasm for specialization, and his humble disclaimer of expert knowledge outside of his own field, make it difficult for him to understand the needs, beyond the confines of his subject, of the individual student. He may be still less able to provide a wide view of the needs of the whole student body, and much less still of the educational system of his country. Experts in the XYZ of one field are not necessarily good judges of how to teach the ABC of other fields -- to misquote Shaw.

There are only two answers to the time problem. The first is that there is always time for what is important. Secondly, if very real difficulties prevent a full immediate implementation of a general education program, Churchill's aphorism should be remembered: 'It would be an inconvenient rule if nothing could be done until everything can be done'.

Indeed, there are very real immediate difficulties in the way of finding time, and possible solutions must be examined in some detail. It may not be realized, except by a student of the writing on general education, just how frequently it is stressed by authorative bodies and authors that factual material and how-to-do-it techniques are given precious curriculum time, much of which should rather go to an understanding of general principles. It will be well to examine the statements of such authorities, and this is done below even at the cost of some repetition. British views are quoted first, but since the United Kingdom provides little general education, the case is all the stronger in America, which does accept an obligation to find time for this purpose.

8.21. Principles before facts and techniques.[1] Understanding before memorizing. Learning before cramming.

"The human mind is as never before 'master of so many facts and sure of so few principles'," says the British University Grants Committee. [1959, p. 38][2] The Committee goes on to say: "We are not convinced that, at any rate in some courses, a reduction in the time occupied by formal teaching need involve a lowering of standard. This view may seem paradoxical to those who equate the standard reached by the student with the volume of knowledge which he has acquired, but we believe that some subjects could be presented in a manner which would do more to develop the student's capacity to think if the volume of factual information were reduced and more emphasis placed on the implications of what is being studied. We should not therefore regard a reduction in the amount of information absorbed by the student during his first degree course as necessarily disastrous, since if the time saved were well spent he would come out better prepared for life in other, and as we think more important, ways. There are many occupations for which the required qualifications can no longer be obtained within the limits of the under-graduate course. The student whose life work is to be scholarship or research within the universities already needs postgraduate training to fit him for it, and there are many posts outside the universities, attracting

1. See pages 319 and 320.
2. See page 5.

arts students as well as scientists and engineers, for which further training is also necessary." [Ibid., p. 41]

The Crowther and Linstead reports and the Secondary School Examinations Council make very frequent references to this same point. The authors of the Linstead report refer to the 'over-exacting demands for factual requirements'. [Linstead, 1961, p. 33] They mention the report of the Physics Panel of the University of Birmingham's Gulbenkian Foundation Enquiry, which criticizes excessive concentration on factual detail, which both retards the development of critical habits of thought and the appreciation of general principles. [Birmingham, 1959, p. F6] Syllabuses can be reformed by 'the discarding of obsolete material; the postponement of specialized subjects to a later stage; the reconstruction of the material that [remains] so as to emphasize underlying principles rather than factual detail'. [Linstead, 1961, p. 65] The Chemistry Panel of the Science Masters' Association says that G.C.E. 'A level courses have been widely felt to be burdened with a factual content under which many pupils have lost sight of the real meaning of scientific enquiry.' [Ibid., p. 94]

The authors of the Crowther report say that 'the job of the Sixth Form is above all to teach a boy to think and not just to memorise facts'. Their study of syllabuses over a span of thirty years shows that 'a review is now imperative'. [Crowther, 1959, pp. 265, 266]

The fault lies not only with syllabuses, but also with methods of examination. "An examination designed to be taken by thousands of candidates is by its nature rather ill-designed as a selective instrument; and, when used for the purpose, it frequently has a bad influence on teaching. The need for a number of examiners to apply comparable standards is apt to lead to the kind of fore-ordained answers for which careful coaching can prepare. It sets a premium on the kind of teaching which never strays from the syllabus, which is relentless in its rejection of side issues opening up the way to deeper understanding, and which sees to it that pupils spread their time and their knowledge evenly over all parts of the syllabus. Good teaching, on the other hand, will often devote a great deal of time to some single aspect which grips a pupil and elicits from him an unusually good response. This is frequently the

way in which an intellectual 'break through' can be accomplished." [Crowther, 1959, p. 293]

The Secondary School Examinations Council [SSCE, 1960, pp. 14, 15] refers to the desirability of reducing, and even in some cases reconstructing, the syllabuses, in order to increase the premium on intellectual capacity as against mere factual knowledge. "In our consultations with various specialist bodies we have discussed what could and should be done to this end and by whom. We confess that these discussions have left us somewhat discouraged, since these bodies, while generally agreeing in principle that a reduction of syllabuses is needed, have for the most part been unable to propose any particular in which syllabuses in their own subjects might be reduced. We have also had difficulty in ascertaining where the main obstacle to further reduction lies, whether in the universities or in the schools." The Council goes on to say that "it has been suggested to us in this connection that the pressure on candidates often arises less from the extent of the syllabuses than from the type of questions set, which in many cases seem to give undue advantage to the gift for memorising facts, and therefore to encourage cramming."

Sir Richard Livingstone said in 1954 that "in all subjects, not only in technology, there tends to be too much detail put in. If you are going to study a subject you must know the general principles behind it. You must know the way in which to learn all about it. I think one would find that students, a year after the day of examination, have forgotten quite a lot of what they have learnt. I am not sure it is worth learning what you are going to forget in a year. I think there is a tendency in all subjects to overload a course with detail. Time could be saved by pruning. As things are, one is expected to know more on the day of examination than one ever knows in later life. There are always good reference books: one need not have all the knowledge one needs in one's head." [Wood, 1955, p. 43]

A.N. Whitehead said much the same, and he here provides a bridge from British views to American views. "Whatever be the detail with which you cram your student, the chance of his meeting in after-life exactly that detail is almost infinitesimal; and if he does meet it, he will probably have forgotten what you taught him

about it. The really useful training yields a comprehension of a few general principles with a thorough grounding in the way they apply to a variety of concrete details. In subsequent practice the men will have forgotten your particular details; but they will remember by an unconscious common sense how to apply principles to immediate circumstances." [Chicago, Business, 1960, p. 1]

Hutchins can be expected to put things differently. "My contention is that the tricks of the trade cannot be learned in a university, and that if they can be they should not be. They cannot be learned in a university because they get out of date and new tricks take their place, because the teachers get out of date and cannot keep up with current tricks, and because tricks can be learned only in the actual situation in which they can be employed." [Hutchins, 1936, p. 47]

Palfrey in his annual report on Columbia College for the year 1959 [pp. 7, 8] says: "The puzzled response of liberal arts colleges to the accelerated growth of human knowledge in the last fifty years and their bafflement as to how to cram all or a fraction of it into four years of college may prove very healthy. Colleges may stop trying to teach everything, and to cover everything. Departments may be forced to decide what is most important, in substance and in intellectual equipment, for an undergraduate to acquire and to concentrate on teaching these things well."

"There is an analogy in the experience of the professional schools. A law school does not attempt to cover the whole field of law, or the whole of any one field. It is concerned with teaching students to become 'experts in relevance', as Justice Frankfurter put it. Its permanent imprint does not come from any one course or course sequence. It comes from the discipline acquired, accompanied, one hopes, by the encounter of students with one or two great professors." Practically all the persons referred to throughout this dissertation have concluded in one form or another that the aim of university education is to teach students <u>to think</u>. If this is to mean more than the wall-motto injunction 'THINK' which is to be seen in hundreds of International Business Machines offices in the United States, it is necessary to stress just this very point, that effective

thinking is relevant thinking.

It is important also to learn from such an authority as Justice Frankfurter that 'a law school does not attempt to cover the whole field of law, or the whole of any one field'. The survey course has been rightly criticized, and if the criticism has resulted in what has been called in these pages the 'significant highlights' method of study, then from the very weaknesses of the survey course may come an exercise in deciding what is relevant. Professor Ruth Eckert has pointed out that integration in a subject should not be an attempt at an historical survey or an encyclopaedic coverage. It must be essentially conceptual and methodological. [Rice, 1962, p. 87] It cannot be stressed too often that the aims of general education may be adequately achieved with no greater subject-matter content than is necessary to establish some understanding of the concepts and methods of the humanities, the social sciences and the natural sciences.

These points are made very frequently in the McGrath series. Holstein in a concluding chapter on modern trends in Liberal education and engineering, refers first of all to the necessity to 'increase the emphasis on general principles and ..... to eliminate duplication of effort'. It has been noted[1] that the Ford Foundation has made a grant to ten universities to 'modernize the teaching of engineering', and this 'provides impressive evidence of the seriousness with which this matter is viewed and of the general desire for the rapid development of a broadened course of study'. [pp. 117, 119] McGrath himself stresses that 'even professional instruction should stress broad principles, key ideas and overarching generalizations, rather than detailed facts or techniques'. [1959a, p. 39]

8.22. Some general comments.

The Gullette committee which produced the report on General education in engineering, having discussed the purpose of general education, course content, course arrangement, and administration, asks how much time this will take, and where is the time coming from? "The committee is inclined to discount the significance

1. See page 319.

of these questions and to relegate them to last place in its consideration, but many correspondents have indicated that this is the one thing they want to know, and they want not a general answer but a specific one. They will not be satisfied with the statement that if the humanistic-social program is truly worthwhile, time will be found to accommodate it." [ASEE, 1956, p. 42]

They first affirm that the humanities and social sciences should be given 20% of the engineering students' time. They stress that this means that the time devoted to the humanities and social sciences must be efficiently used, and, equally so, the time given to engineering and science courses.

The committee believes that one-quarter or more of the time of the program in the humanities and social sciences can and should be undertaken in schools. In particular, students who in their freshman year are found to need 'remedial English' must be given just this, but not for credit, and thus not in general education time. Nor should 'technical writing' or 'report writing' be considered part of a general education. Both vertical and interdisciplinary integration are needed. Integrated sequences save time on elaborate introductory sections. Subject matter does not fall into neat blocks of 12 weeks or 16 weeks, or multiples thereof. "If an instructor has 16 weeks for a particular body of subject matter, he will take 16 weeks whether he really needs it or not. If he needs more he cannot get it. If he needs less, he cannot take it." [Ibid., p. 44]

Horizontal integration is needed in interdisciplinary courses -- for example, in a humanities course covering philosophy, history, and literature. It is just as necessary in mathematics and the natural sciences. (One of the commonest first year science curricula in South Africa, for example, consists of mathematics, applied mathematics, physics, and chemistry. Since the content of these courses is determined by three or four different departments there may be considerable overlap). It may be added that unswerving loyalty to rigour, especially in mathematics, in first year courses, results in material unintelligible to the weaker students, and easily recapitulated with all the necessary exactitude in a second year for the stronger students.

'It is important that instructors, impressed with the vastness of their subject matter and armed with their hard-won learning, take care not to overwhelm their students with demonstrations of their own erudition.' [Ibid., p. 18]

The Gullette report stresses that in the forefront of modern scientific investigation, the discrete nature of the disciplines has been largely lost. Physics, chemistry, mathematics ..... come together on common ground.[1] Yet the committee found too little reflection of this in the introductory science courses that it observed.

The evidence as to whether or not an extra fifth year would produce more general education was found to be inconclusive.[2] (In practice, many four-year students take more than four years). In some five-year programs the extra time is used for more specialized technical courses rather than for more general courses. Surprisingly enough, the same is true of 3-2 programs.[3/4] Students seem so awed by the final two years that they take more technical and less general courses than they would have in the engineering school itself. [ASEE, 1956, pp. 42 - 49]

The pessimistic sub-heading of this section of the Gullette report is: 'Reorganizing an academic curriculum is like trying to move a graveyard'.

If it appears that only a change to longer courses will make time available for general education, then an analysis of costs must be made.[5] It is as well however to note here Ashby's statement that it costs £1500 to train a technologist and £45,000 to train a bomber-pilot. [1958b, p. 483]

---

1. It has been noted already that the new University of Sussex has no departments of physics, chemistry, and mathematics, but only a School of Physical Science.
2. See page 338 for a discussion on the lengthened Pharmacy program.
3. Three years of 'liberal arts' in one college, followed by two years of engineering in another.
4. The University of Stellenbosch has, unlike other South African Universities, a five-year engineering program leading to the degrees of B.Sc. and B.Ing. The curriculum does not provide for general education.
5. See [Linstead, pp. 69 - 75][Hungate, 1963, pp. 21 - 29] and [Malherbe, 1963, p. 9].

8.23. An extra year? Or one year less?

The authors of the Linstead report, having examined the possibility of improvement both in syllabus and in teaching methods in order to secure greater breadth in undergraduate curricula, recognize that such reforms welcome as they would be, would not reduce the total time-load by any very significant amount. "It seems likely, in fact, that if university terms are to remain their present length (8 or more usually 10 weeks), nothing short of a fourth academic year would provide the relief that is needed. Before, however, considering the arguments in favour of an extension of the university course by a whole academic year, it would be well to take the prior question whether the present relatively short academic term must be accepted. The cost of an additional year might be avoided if the existing academic year, limited to 30 weeks (and at Oxford and Cambridge to 24 only) were extended. The present term seems, on the face of it, wastefully short, in that, for nearly half the year, neither the student's time nor the expensive buildings and equipment provided for his use may be occupied to the full." The report concludes that 'any extension of the university course must take the form of an extra year'. This is primarily because a longer academic year would reduce opportunities for research, and this would reflect indirectly on the quality of teaching. [Linstead, 1961, pp. 68, 69]

The tremendous pressures arising from the growing need for more places, and the difficulties of finding suitable staff and of affording costly buildings and equipment must sooner or later lead to an enquiry as to how many university teachers do in fact need, and use, long vacations for research. It must be remembered that, in arriving at the teaching load per week, account is taken of the need for time to keep abreast of specialist subjects. It may well be that the normal weekly teaching load, and the length of the academic year could be increased for many members of staff, who have more ability as teachers than interest in research. Regulations could be framed to allow for applications from such persons for extended 'long' (or 'Sabbatical') leave to make possible a particular piece of research.

That considerable thought is needed about the whole subject is evident from the study of Hungate

[1963] and McGrath into the possibility of reducing the number of years required in America (usually four) for a first degree by means of their suggested trimester three-year program. They believe that "the facts presented justify these conclusions:

> (1) The fourteen-week trimester plan will encourage more students, especially those of marked ability, to complete their undergraduate studies in three rather than four years.
>
> (2) It will make available the services of faculty members for a larger percentage of the calendar year, and thus ease the shortage of qualified teachers.
>
> (3) It will provide, with full salary, a relatively long period every third year for teachers to improve their qualifications (this is of key importance for the younger staff members), to pursue their research full time, or to take a vacation from their professional duties.
>
> (4) It will increase the salaries of faculty members and thus will attract into the profession a larger corps of promising young people.
>
> (5) It will markedly reduce the prospective expenditures for new buildings and equipment.
>
> (6) It will reduce the cost of current operation by making better use of the physical facilities, administrative personnel, and other resources.
>
> (7) It will improve the economics of operations of auxiliary enterprises such as dormitories, dining facilities, and bookstores."
>
> [Hungate, pp. 30, 31]

One of the strongest objections to an extra year is the cost to parents, and the postponement by one year of the earning power of students. Many students under present circumstances undertake part-time work during term-time, and full-time work during vacations. This is certainly not the purpose of long vacations. A longer academic year would save parents and students money in the long run if this resulted in decreasing the total study period by one year.

8.24. An extra year in South African universities.

This possibility [1963] is being seriously considered by the Committee of University Principals. The considerations of the preceding section will certainly be given careful thought.

Distressing failure rates in South African universities have brought the matter to the fore. The figures for the Universities of Cape Town, Natal, Orange Free State, Pretoria, Rhodes, Stellenbosch, and

Witwatersrand in 1961 for the number of full-time and part-time students in each year of study of the first degree on the first Tuesday in June, and those promoted to the following year of study after writing the annual examinations and subsequent re-examination, are given below. (It should be noted that students may be promoted without passing all the courses of a given year).

	Number enrolled	Number promoted	Percentage
First year	9105	5469	60.2
Second year	6424	4340	67.7
Third year	4979	3667	73.7
Fourth year	1363	1180	86.6
Fifth year	434	401	92.2
Sixth year	352	287	81.6
Seventh year	22	19	86.4

[DEAS, 1962, p. 62][1]

Too little concern has been shown in South African universities about the poor results of the weaker and the less diligent students. Only one-third to one-half attain a pass degree in the minimum period at the University of Natal. Because South Africa's manpower shortage is great, these graduates are needed, but the standard of the pass degree is not equal to that of good overseas universities.

These weaker students however hold back the brighter students, who could do more in three years than they now do. The latter go on to a fourth honours year, and South African honours degrees <u>are</u> internationally recognized.

At the opening of the University session in February, 1963, the Principal of the University of Natal, Dr. E.G. Malherbe, made a suggestion, which may meet both of these problems, and allow for the introduction of general education. "A preparatory year would deal with certain prescribed fields of study which may cut across faculty barriers. At the end of the year the students will be subjected to an examination which <u>must be passed as a whole</u>. The performance of students at this examination would determine whether they should be allowed to proceed directly to an honours degree which could be attained in a minimum period of three years, or to an ordinary (pass) degree obtainable in three years. Students not passing the examination as a whole at the end of the preparatory year should not be allowed to proceed with university studies in these

1. See pages 35 and 36.

faculties, although they may attempt the freshman year again. (Naturally, it should be within the powers of universities in exceptional cases to exempt students from the freshman year and to admit them directly to the honours degree or the ordinary degree).

The advantages of such a proposal are many.

(1) The benefits of a general education program, even to this limited extent, have been discussed at length in these pages. At the very least, students would, after the preparatory year, be able to choose their field of specialization more wisely. (See pages 34 to 36). The advantages of a preparatory year might in due course lead to the prescription by South African universities in later years, as at Keele, of not less than a certain minimum of subjects outside the field of specialization. (See page 173). Compare the present South African 'not more than'prescriptions. (See pages 216 to 222).

(2) "Even for those who do not succeed in passing the examination as a whole at the end of the freshman year, it will provide a desirable amount of general education which would stand them in far better stead than the present first-year set-up, which is often too narrow in scope."

(3) "It would put the onus on the university itself for selecting its own university material suited to degree work either for honours or for the ordinary pass according to the student's aptitude."

(4) "It would reduce the casualness with which first-year students often approach their work, thinking that they can carry into their second and third years courses in which they had failed. It will be an 'all-or-none' business."

(5) "The schools should welcome this development because there is nothing that will help more to improve teaching at the high school level than to have teachers who have had a four-year university education before entering on a professional course. The starting salary of such teachers should take that into account." [Malherbe, 1963]

It might be added that, if general education is important there is no better way of securing an understanding of its values than by providing it in greater degree for teachers, as Griswold has forcefully pointed

out. (See page 359).

The University of the Witwatersrand (see pages 239, 240) appointed a sub-committee in 1948 to enquire into a proposed basic-training year. The suggested objectives of the basic-training year [pp. 3, 4] were outlined as follows:

> Two chief purposes should govern the curriculum and methods of teaching:
>
> (1) To develop in the students fundamental abilities needed for university study, e.g.
>
> (a) Ability to understand the mother tongue when spoken and written.
>
> (b) Ability to discover data, whatever the subject of study.
>
> (c) Ability to think, i.e. to marshall and evaluate data when discovered, to perceive relations, and to draw conclusions.
>
> (d) Ability to express thought through the mother tongue, spoken and written.
>
> (2) To provide a better means than any now available for selecting those students best fitted to enter the restricted faculties and for eliminating those not fitted to continue with any kind of university study. This may be extended to include aptitude and similar tests.
>
> Other, subsidiary purposes may be served also, such as:
>
> (3) Increasing the students' knowledge in this or that field.
>
> (4) Developing in the students a sense of responsibility, so that they will learn to depend more upon themselves and less upon their teachers.
>
> (5) Strengthening in the students a sense of belonging to a community, so that they will begin to learn tolerance towards people with an upbringing and a way of life different from their own, and will become increasingly conscious of their duty to contribute towards the common good.
>
> These subsidiary purposes are undoubtedly important; but unless the two chief purposes are fulfilled, the Basic-Training year will be largely a waste of money, energy and time. What chiefly matters for university study is not the amount that a student knows when he begins, but rather his ability to use what he knows and to set about acquiring more when he needs it."

This section (8.2)will be concluded as it began. Education is a continuous process from the pre-primary to the post-tertiary stages, and if it is planned in an overall fashion as one continuum, it will be easier to find solutions to most problems. Answers are most needed however during <u>The four problem years</u> [Williams, 1961] -- the last two years

of school and the first two years of college. The curriculum problems of formal education for the period from four years of age to twenty-four years of age have been largely solved, at the bottom end and at the top end. We know what a nursery school education should comprise, and what should go into a primary school curriculum; there is not much doubt as to what courses we should offer to secondary school students who may leave school to go to work before matriculating. Starting from the other end, we know what we want of students engaged in post-graduate study, and in the honours bachelor's degree and final undergraduate years. The most critical problems of curriculum content relate to the last two years of secondary school, and the first two years of university.

'Problems of balance which seem insoluble in two years of a crowded curriculum, whether in school or college, become easier to solve when the span dealt with is four years, and wasteful duplication is sharply reduced'. [Aelhpy, 1952, p. 124]

8.3. GENERAL EDUCATION: AT SCHOOL? AFTER UNIVERSITY?

8.31. Advanced placement, and early admission.

The Andover, Exeter, Lawrenceville, Harvard, Princeton, Yale report is essentially a study of the relation between the last two years of secondary school, and the first two of college. In the summer of 1951, the Fund for the Advancement of Education, established by the Ford Foundation, agreed to support the project with a generous grant. The project took the name of 'The school and college study of general education'. [Aelhpy, 1952, p. 1, and Ford, 1957, p. 2] 'The school and college study of admission with advanced standing' sought to enrich and accelerate general education in the eleventh to fourteenth grades by providing able students with the equivalent of college-grade work in school. In 1955, the College Entrance Examination Board assumed responsibility for the program (now known as the Advanced Placement Program[1]), and opened

1. See Advanced Standing [Radcliffe, 1961] for a description of advanced standing, the CEEB and other programs, descriptions of the program in eleven universities and colleges, and a bibliography.

it up to participation by individual students in high schools throughout the country. [Ford , 1957, pp. 4, 5] The growth of the program is illustrated by the following figures:

Year	Schools	Students taking exams.	Exams.	Colleges
1955-56	104	1,229	2,199	130
1956-57	212	2,068	3,772	201
1957-58	355	3,715	6,800	279
1958-59	560	5,862	8,265	391
1959-60	890	10,531	14,158	567
1960-61	1,126	13,283	17,603	617
1961-62	1,358	16,255	21,451	683

[CEEB, 1962-63, p. 9]

The largest group of candidates (more than 500) registered at Harvard, and of this group more than 130 were eligible for sophomore standing. At the other extreme were many colleges that received only one or two Advanced Placement candidates. [Ibid., p. 19]

> "Dr. James B. Conant has said that the Advanced Placement Program is 'one of the most encouraging signs of real improvement in our educational system'. He has also said that 'every school ought to strive to provide the opportunity for advanced placement in at least one subject, no matter how few candidates there may be'."
>
> "The Program does three things: it encourages schools to establish college-level courses for their best students, it provides course descriptions and examinations based on these courses, and it urges colleges properly to place and credit the successful candidates."
>
> "The Advanced Placement idea is based on the assumption that some twelfth grade students and teachers can do college freshman work, and that achievement, no matter where or when it occurs, should be recognized and rewarded. The proper execution of this plan for able and ambitious students tends to eliminate waste of time and duplication of effort; it encourages schools and colleges to work together and stimulates students and teachers to higher achievement ....."
>
> "Thirteen Advanced Placement Examinations, based upon the courses discussed in the Advanced placement program: course descriptions, are offered -- American history, biology, chemistry, English, European history, French, intermediate German, advanced German, Latin 4, Latin 5, mathematics, physics, and Spanish."
>
> "Each examination is prepared by a committee of five teachers, three from colleges and two from secondary schools, with the assistance of testing specialists on the ETS staff. The committees are appointed by the College Board."
>
> "Students are allowed three hours to complete each examination. Essay questions predominate, but they are supplemented in some of the

examinations by objective questions. Each modern language examination includes a listening comprehension section that uses tape recordings to test the student's ability to understand the spoken language. Those parts of the May 1962 examinations that consisted of questions of the essay type may be purchased in sets." .....

"Most Advanced Placement students to date have taken college-level courses in school in only one or two subjects. Very few, therefore, plan to finish college in less than four years. They have enriched rather than accelerated their educational programs in both school and college."

"It is possible, however, for some students actually to shorten their college careers. The number of such students is likely to be small, for they will have begun their acceleration as very able performers in three or more college-level courses in school. Most of them will go on to do graduate work."

[Ibid., pp. 5 - 9]

The Fund for the Advancement of Education in 1951 encouraged an experiment in early admission. (See page 106). The purpose was "to ascertain whether tenth- and eleventh-graders with exceptional ability could succeed in college by skipping their last year or two of high school. Although these institutions still admit some 'early admission' students, and although a few other colleges have modified their traditional high school graduation requirement for admission, there is now little disposition in institutions of higher learning to recruit eleventh-graders for college. Some type of advanced standing approach appears to be much more attractive than early admission as a flexibility device. ..... Even the University of Chicago now takes a relatively small proportion of 'early admission' students in its freshman classes, compared to earlier years. However, it is apparently pleased with their quality. Reports indicate that what failures have occurred have been for social and emotional, not academic, reasons." [Cole, 1962, p.16]

Coordination by 'flexibility' between school and college has been discussed in the preceding paragraphs. Coordination in the fields of literacy and numeracy particularly has been discussed on pages 245 to 251. The last three of those pages describe the views of the authors of <u>General education in school and college</u>. They analyse also the same problem with respect to foreign languages, the natural sciences, social studies (American history, Western civilization, contemporary

society), literature, the arts, and values. [Aelhpy, 1952, pp. 40 - 99]

8.32. General education at school?

Can all the general education an undergraduate needs be given during school days? The answer naturally depends on the quality and quantity of general education thought necessary. It is quite evident that the standard of work described in chapters 2 and 3 could not possibly be attained by school-boys and school-girls. The examination papers set by M.I.T. (pages 112, 113), Columbia (page 114), and Keele (page 232) illustrate this point forcefully.

Certainly any general education which can be completed in secondary school should be completed there. In particular, a certain minimum degree of literacy and numeracy must be attained there. But the authorities quoted in chapter 5 all agree that this is not enough. For example, the authors of the Crowther Report make clear that in Britain a fifth form standard of literacy is inadequate, and does not guarantee effective communication such as is needed at the time of entry to a university. (See page 246).

The point was forcefully put by President Griswold. He said[pc] that he had been taken to task in Germany by professors who were scornful of American insistence on the study of English by specialist students at a university. His reply in effect was: "Certainly Goethe should be studied in Germany at the school level. But Goethe should also be studied by German undergraduates -- all German undergraduates -- at university level. And Goethe for the undergraduate should be something very different from Goethe for the school-boy."

8.33. General education in adult years.

Can general education be left to adult years after the conclusion of university study? Should a broadening education be sought after university years? The answer to the first question is 'no', and to the second question 'yes'. It cannot be left to adult years, because if it has ceased at the end of school years, and left dormant during undergraduate years, it will probably never again waken into action. But if developed during undergraduate years, it will continue

all the more vigorously in adult years. A man's education can be called successful only if it produces in him an interest in continued self-education, and a knowledge of how to educate himself.

"General education..... is endless, since it serves those of man's needs which are inexhaustible..... As the proportion of older to younger persons changes, continuing adult education becomes more and more necessary to keep a society from spiritual senescence..... Adults, not young people, set the tone of a community. Almost inevitably, school people, and also the general public, overestimate the importance of the influence of schools and colleges in forming the individual's character, beliefs, and habits of thought. The community outside the schools has a weight and influence the schools cannot possibly have. If life in the community fails to illustrate the teaching of the schools, the individual is more apt to conform to the community mores than he is to hold fast to the teaching of his school or college." [Harvard report, 1945, pp. 252 - 262]

However important general education in adult years may be, the Dressel studies show that the view of liberal arts faculty members (92.8%) and professional faculty members (90.4%), is that it cannot be postponed until then. [1960b, p. 16, and 1959, p. 14]

McGrath [1958, pp. 20 - 24] shows that, with the expansion of knowledge, and the increase in the complexity of human life, continuing education after graduation grows more and more necessary. It must be based on an intellectual curiosity which should be developed in undergraduate years. "With the passage of each year, unless steadily reviewed, the graduate's education will become more inadequate in terms of his competence as a practitioner and as a citizen. He will cease to be an educated person because, as Robert Redfield has said, 'an educated person is one who is continually at work on his own enlargement'." Adult education programs must be established which will hold the interests of graduates not only within, but also outwith, their professional interests, programs 'rich in diversity, serious in purpose and unimpeachable in quality'.

A point with relevance for the next section (8.41.) is that the well-known Danish system of adult education is based on having a group of adult students living

together for two weeks, and this is preferred to individual attendance at night school for two years. The two-week course is typically a family course provided in the summer. Some schools have facilities for children, who are looked after while their parents are attending lectures, study circles and so forth. A single large school may enrol up to 2,000 students in the summer. Some winter courses may run for up to five or six months. The most usual subjects taught, in addition to Danish and mathematics are history, literature, civics, foreign languages, and psychology. The 65 folk high schools provide a general, non-vocational, and socially all-round education for the ordinary adult. [Denmark, 1961, pp. 289, 290]

8.4. SUPPLEMENTS OR ALTERNATIVES?

8.41. Living in residence.

Dr. William Temple, when Archbishop of Canterbury, said:

> "One of the great advantages of the college system at the Universities is that it gathers together in very intimate social intercourse students of different subjects. It would be impossible for me, for example, to express what I owe to my intercourse with students of natural science during my time at Balliol in Oxford. My own study of natural science lasted for one term, during which I turned the age of thirteen ....., but I venture to say that I have acquired sufficient knowledge of how scientists interpret the world to be of real service to me, and this I owe almost entirely to being a member of a college which contained people who studied natural science while I was studying classical languages, ancient history, and philosophy." [James, 1949, p. 86][1]

There is, of course, no doubt about the value of living in residence at a university. One of the most frequently quoted remarks of Newman follows:

> "If I had to choose between a so-called University, which dispensed with residence and tutorial superintendence, and gave its degrees to any person who passed an examination in a wide range of subjects, and a University which had no professors or examinations at all, but merely brought a number of young men together for three or four years, and then sent them away as the University of Oxford is said to have done some

---

1. The temptation is irresistible to refer to an after-dinner speech of Dr. Donald Coggan, Archbishop of York. He is reputed to have said: 'For all I learnt of science at Cambridge, copper nitrate might well mean policemen's overtime'.

> sixty years since, if I were asked which of these two methods was the better discipline of the intellect, -- mind, I do not say which is morally the better, for it is plain that compulsory study must be a good and idleness an intolerable mischief, -- but if I must determine which of the two courses was the more successful in training, moulding, enlarging the mind, which sent out men the more fitted for their secular duties, which produced better public men, men of the world, men whose names would descend to posterity, I have no hesitation in giving the preference to that University which did nothing, over that which exacted of its members an acquaintance with every science under the sun."
>
> "When a multitude of young men, keen, open-hearted, sympathetic, and observant, as young men are, come together and freely mix with each other, they are sure to learn one from another, even if there be no one to teach them; the conversation of all is a series of lectures to each, and they gain for themselves new ideas and views, fresh matter of thought, and distinct principles for judging and acting, day by day."
>
> [1852, pp. 68 - 70]

The British University Grants Committee [UGC, 1959, pp. 27 - 29] agrees 'that for most students there is no satisfactory substitute for a properly conducted hall of residence if they are to participate fully in the education of the student by the student which is one of the most important parts of a university education'. They cannot however plan for more than two years' residence in hall (with arrangements by which ex-residents would retain the right to use some of the amenities of the hall). Even this limited objective will take years to reach. Alternative means must be sought to achieve these aims. Students, who do not live in residence, should be encouraged to spend more than their lunch-hours on the campus. Libraries could be kept open until late in the evenings. Non-resident students might be given dining rights in halls. Sir Eric Ashby said[pc] that amenities could be so planned as to increase the waking time of students on the campus, and avoid the huge costs of providing for sleeping time!

However much a good general education can in theory be obtained in this way, in practice this does not happen for more than a fortunate minority.

It has been noted that less than half of American students live in residence. (See page 170 fn. 1). The percentage of British students in

residence has hardly grown at all over the years: 1938/39 - 25.1%, 1951/52 - 25.9%, 1956/57 - 27.4%. [UGC, 1959, p. 27 and UGC, 1959b, p. 10]

8.42. Student activities.

Student activities are often very extensive, as is illustrated for the Massachusetts Institute of Technology on page 111. Leadership may be learnt here, in a limited sphere where mistakes do not matter very much, and indeed where mistakes provide valuable lessons. The intellectual content, however, of these activities is usually primarily in the field of the student's specialty. They achieve broadening of interest for a minority only. A student's union is a home of activities for those who do not live in residences. But it has serious limitations, 'and the larger it becomes, the more apparent its limitations. A union caters for the more sociable and extrovert type of student; those who want privacy and silence will not find it in union buildings, which as student numbers rise become noisier and more crowded. Thus the larger the student body becomes, the higher is likely to be the proportion of its members who take no active part in the life of the union'. [UGC, 1959, p. 29]

The lesson to be learnt, however, is that even a university like the Massachusetts Institute of Technology, with its thorough-going scheme of student activities, and its successful lecture series (run by the students) considers it to be essential to provide a formal general education program.

8.43. Lecture series.

The studium generale program of the Technological University at Delft has been discussed. The success of voluntary lecture series at the Massachusetts Institute of Technology and Birmingham University has been noted. Practically every university arranges, either through staff members, or through students, for such programs.

One of the most deliberately planned programs is to be found at the Imperial College of Science and Technology. Free midday periods are arranged twice weekly in the autumn and spring terms. The program from October 1960 to March 1961 covered the following

subjects. The items separated by semi-colons represent alternatives on one day.

The psychology of perception; The American presidential election; Lunch-hour concert.
The 1960 student surveys at the college; Background to the study of Russian.
Crime and sin; Space research; Lunch-hour concert.
The nature of Russian; The irresponsible society; The enjoyment of music.
Barriers to a new environment -- architecture and taste in a machine age; Humanism -- a modern approach to life (arranged by IC Huxley Society); Lunch-hour concert.
The origin and purpose of man; The economics of transport (arranged by IC Railway Society); The enjoyment of music.
Growing points in the world: Canada, the trans-atlantic way of life; From poem to poet -- explorations into the work of some living poets: T.S. Eliot; Lunch-hour concert.
Prehistoric technology: I; The enjoyment of music; Talk to be arranged by IC Liberal Society.
Prisons and penalties; From poem to poet: Philip Larkin; Lunch-hour concert.
Prehistoric technology: II; Is science corrupting the arts?; The enjoyment of music.
Talk to be arranged by the IC Nuclear Disarmament Group; From poem to poet: Robert Graves; Lunch-hour concert.
Great religions of the world: Judaism; Has science buried Shakespeare?; The seeds of love (the bawdy element in English folk song).
Growing points in the world: the Communist state of China; From poem to poet: Ted Hughes; Lunch-hour concert.
Recent developments in psychical research; Talks to be arranged.
The winter exhibition at the Royal Academy; From poem to poet: David Gascoyne; Lunch-hour concert.
Great religions of the world: Hinduism; Television and the arts; The enjoyment of music.
Films arranged by IC Film Society; Carol service; Lunch-hour concert.

Some of these lecture series continued into the spring term of 1961: The enjoyment of music; Growing points in the world (Western Germany, Israel, Brazil, Ghana and Nigeria); Great religions of the world (Buddhism, Islam). New series were spread over the term: Style and vision (classic, romantic, realist, modern developments); Man from the point of view of a biologist (5 lectures); Five great contemporary poems and their authors (Yeats, Auden, Frost, Owen, Dylan Thomas).

Interesting titles of a 'light program' nature are chosen even if the content is of 'third program' standard. Subjects of popular appeal are deliberately included: Crime and sex, Courtship and marriage,

Parents and children. (No one-to-one correspondence is implied!)

The programs provide a feast of lectures, widely varied, and with a choice from two or three lectures or recitals each day. The lecturers are persons of considerable, sometimes great, distinction, obtainable probably only in a large metropolitan city such as London. The 40 student societies are free to suggest lectures. Some lectures are single lectures: some form part of a series. No other lectures are held between 1.30 and 2.25 p.m. on Tuesdays and Thursdays, so that all students and staff are free to attend.

In addition, great store is set by the "Touchstone week-ends", founded by the late Rector, Sir Roderic Hill. The announcement for 10th and 11th February, 1962 (Rev. Charles Davey on "The Very Devil" - the problem of evil) says "Twice a term a Touchstone Week-end is held, at which a party of about thirty staff and students from South Kensington travel by special coach to hear a guest speaker introduce a subject for general discussion. The food is good, the company is pleasant, there is a bar in the house on Saturday, and Windsor Park is near for a Sunday morning walk. The only charge is fifteen shillings. The Governing Body consider that these week-ends are valuable and they are heavily subsidized. Married staff and students are invited to bring their wives, so far as accommodation allows."

The week-end starts with tea on Saturday afternoon, after which a guest speaker introduces the subject for discussion in a talk of about an hour. This is followed by an open discussion till 6.30 p.m. when there is a break before dinner at 7. After dinner the party generally splits into two or three main groups to discuss questions subsidiary to the main topic. Sunday morning is free, and at about 3 p.m. the party re-assembles and the spokesmen of the groups report the findings of their groups. The speaker sums up.

"Other recent subjects for discussion have included Human communications and the Commonwealth idea, The organization man, The place of religion in a modern community, The law and the individual, The impact of society on technological advances. [Imperial College, 1960 - 61, p. 82]

A return from Professor A. Tustin dated 9th

January, 1961 states that 43 of the undergraduates out of the 1235 who replied (75% of the total) had attended a 'Touchstone Week-end', and 10% of post-graduate students. The author says: 'These figures imply a degree of apathy towards matters of general interest that is lamentable'. He sets little store by the reasons given by 803 non-attenders: 'Too much work to do', 43%; 'Not been interested', 37%; 'Too many committee meetings', 8%; 'Difficulty in getting lunch in time', 12%.

The same return gives the following percentages (for undergraduates) to the questions: (1) Do you go to the lectures arranged under the general studies programme? (2) Do you go to lunch-hour concerts?

	Frequently	Occasionally	Rarely	Never	Total
(1)	21	45	27	7	100
(2)	3	17.5	27	52.5	100

The following table gives comparable figures for post-graduate students:

	Frequently	Occasionally or rarely	Never	Total
(1)	13	67	20	100
(2)	2.5	38	59	99.5

The above figures come from a survey arranged by the Rector, Sir Patrick Linstead.

Burchard [1953, II, 20] describes lecture series in British universities in these words: "The student specializes intensively from the outset of his university career but is given the opportunity during his three years to attend lectures in other fields. The phrase 'given the opportunity' is significant since there is little urging and certainly no compulsion. The fare offered is often distinguished ..... To be sure, some lectures are popular and some students go regularly. But as a general prescription and certainly for young Americans this leaves almost everything to be desired. ..... Subjects which require no further attention than attendance will not be given even that."

American educationists certainly believe that general studies should be compulsory, and should be examined. Three British views follow. Mr. E. Welbourne, Master of Emmanuel College, Cambridge University, said: 'Hitherto no one in this University has been compelled by its social habits to anything and I should regret the compulsion of culture, which nearly always would

mean what some other man regarded as culture. Compulsory athletics were avoided, and I hope that compulsory culture will be avoided in turn'. Professor D.G. Tucker of Birmingham University believes that 'voluntary participation is, of course, of great value and should be the end-result of study. But organized (and compulsory) study and discussion seem essential since most of our students would not readily participate on a voluntary basis'. [Linstead, 1961, p. 53] Moberly puts the point tersely: 'one hour's airing will not free minds which are confined to their grooves for the rest of the working week'. [Moberly, 1949, p. 186]

8.44. The cultural background of a good home.

Fortunate indeed is the student who comes from a home of books and music, where conversation ranges freely over social and aesthetic problems. But the average home in most countries is dominated by radio and television, and the popular programs are the poorer programs.

When a university education was an education for the sons of aristocrats, they might well have come from homes of culture. The University Grants Committee, however, says: "We have no doubt that if the full benefit is to be obtained from a university education it is often desirable and even necessary for some students that they should live away from home. Otherwise there is a risk that they will develop a daily routine which takes them home as soon as their hours of formal teaching are over, so that their social life at the university is confined to a hurried luncheon in a crowded refectory. Students who are the first of their families to reach a university may arrive there with little conception of what a university life has to offer outside its formal curriculum, and they may never learn it unless there is a sharp break with home life which compels them to look to the university for new social contacts and new leisure-time occupations to replace those which they have left behind. We therefore welcome the progressive reduction in the number of students who live at home during the university term." [UGC, 1959, p. 25]

The authors of the Crowther report found that "the great majority of boys and girls whose full-time education extends beyond 15 are the first generation

in their families to attend a grammar school. The Social Survey brought out the fact that both parents of two-thirds of the boys and girls who attended selective schools (grammar schools and technical schools) themselves left school at 14, which was in their day the legal minimum leaving-age." [Crowther, 1959, pp. 8, 9]

8.45. Supplements, not alternatives.

Living in residence, student activities, lecture series, the cultural background of a good home are all valuable supplements to general education. Those who believe that they can provide adequate alternatives to formal, compulsory, and examined, general studies evidently do not rate highly the importance of general education.

8.5. DIFFICULTIES OF IMPLEMENTATION.

8.51. General.

The problem of finding time for general studies has been discussed above. It is the first objection to be voiced as a rule. The second is that students, anxious to proceed with their special subjects, and to progress towards their vocational goals, will be disinterested. American educationists often met this difficulty on the introduction of general education for a first time. "The students ahead of us did not have to follow a program of general studies; why should we be forced to do so?" But once established, general education is accepted fully. Personal attendance at many freshmen classes at M.I.T., Harvard, Yale and Columbia during the opening month or two of the academic year 1960-1961 revealed, without exception, enthusiasm on the part of freshmen for general studies. It has already been noted, and should be repeated, that students who had no wish for a broadening of their undergraduate education would probably not have been selected for admission.

In General education: explorations in evaluation, the final report of the 'Cooperative study of evaluation in general education' of the American Council on Education, by Dressel and Mayhew, an account

is given of the reaction to general education of 14 student groups on 7 campuses. "All but one of fourteen student groups, varying in size from three to twelve students, unanimously endorsed the idea of a limited general education requirement. Even in the remaining group only a minority held out against the idea. The principal values noted for general education readily summarize into three major points: (1) the general informational and cultural value; (2) the practical value in that general education courses tend to be more closely related to life problems; and (3) the orientational value including (a) the opening up of new areas of interests, (b) aid in choice of major and vocation, (c) provision of a perspective on society and on one's chosen vocation. All groups made these points and all agreed unanimously to these values. Culture apparently is a genuine concern of students. Many indicated that their general education courses provided a basis which they had previously lacked for entering into serious conversations with adults." Students had their criticisms: lack of challenge to brighter students, purpose of requiring general education courses not explained to freshmen, classes large, too much coverage and hence too little flexibility, poorer teachers than in specialist courses, tests too factual, too much overlap of content. "Despite the critical remarks, all groups -- as we have already noted -- approved in principle and in fact of the general education courses which they had taken. We found absolutely nothing to back up the contention that students are so oriented to a particular major that they bitterly resent general education requirements. The most that our interviewees would admit to is that there is such a tendency at first, but that it can be overcome by careful explanation. There was further agreement that any required course has to bear some resentment and that exceptionally good teaching is necessary to justify the requirement." [Dressel, 1954, pp. 257 - 259]

The arrangement of a general education program presents difficulties, but no more than the problems of deciding between various alternatives. Should general studies be confined to the first year, or spread over all the four years? Should it have certain 'core'

courses, required of all students, or should all general courses be elective, or is a mixture practicable? Should some or all of the courses be 'inter-disciplinary? (See section 7.23 on page 315). Should staff from the Departments conduct general studies or should a special staff be appointed? Examples of these and other choices which have to be made are discussed in earlier chapters, particularly chapters 2, 3 and 6.

In point of fact the most serious difficulty is to find suitable staff, and to keep them. This matter has been discussed with reference to M.I.T. (page 67) and Harvard (page 58). The problem is to find teachers who can teach an inter-disciplinary course covering, for example, history, and philosophy, and literature[1]: few will have been trained thoroughly in more than one or two of these disciplines. The other problem is to keep staff who know that the academic rewards go to specialists and not to generalists.

8.52. South Africa.

If general studies are to be introduced into South African universities it will be difficult enough to find the staff required in quantity. With regard to quality, staff from various Departments, well versed in one subject, would have to be used, but they would have to understand very clearly the purposes of general education. In particular they would have to realize that the relation of course AI in their subject to courses AII and AIII is not nearly as important as the relation of course AI to courses BI, CI and DI. In time, inter-disciplinary courses could be introduced making these interrelations clearer. In due course,

---

1. See Graduate general humanities programs [Neudling, 1960]. This describes 13 programs (6 doctoral and 7 master's): all take the whole range of humanistic study for their domain; all aim to provide either a broad background perspective of humanistic studies, or cross-departmental avenues of studies in the humanities, or both; all have administrative identity and formal curricular requirements, and lead to a degree in humanities. Inter-departmental programs which limit their scope (for example, 'comparative literature' or 'American civilization' programs) are not included, nor are ad hoc combinations of departmental fields. [pp. 2, 3] See also Graduate education, an annotated bibliography by BLESSING, James H., [U.S. Department of Health, Education, and Welfare, OE-50022, 1961]

South African universities might institute graduate studies in the humanities, the social sciences, the physical sciences, and the biological sciences, rather than in one subject only. This is possible in certain American universities.

In addition teachers of 'communication' would have to learn just how different this would be from teaching a conventional English I or Afrikaans I course. Students would, no doubt, be required to study 'communication' in both the home language and the second language. It may be easier to see what 'communication' means with regard to the second language than with regard to the home language.

"In South Africa knowledge of the second language (that is, Afrikaans for the English-speaking pupil and English for the Afrikaans-speaking pupil) is however also very important as a means of communication. More attention than usual is therefore given to the second language. Whereas the mother tongue is the primary means of expression of the personality and the primary means of communication, the second language also has an important contribution especially as a means of communication. For both languages however, it is important that everyone should be able to use them as means of communication rather than as means of literary expression. There has been much confusion in connection with the teaching of language and literature respectively. Our primary aim should not be to train potential authors but to enable everyone to use language to communicate efficiently with other people. In our teaching we are not always clear as to what is language and what literature. It seems to me that if we approach this matter from the point of view of communication and of humanities respectively, that is if we look upon language teaching as communication and upon literature as a humanity, we shall have much greater clarity as to what should be taught." [van Zyl, 1962, p. 27]

The difficulties of implementing a general education program are substantial, but the values would be considerable, and many of MacMillan's points mentioned above would be met. The gap between school and university would be bridged. Improvement of literacy and numeracy would be of primary importance

in the curriculum of the basic-year. The content of the subjects would be intermediate between school and university. Instructional methods would be intermediate between school teaching and university lecturing. The standards of discipline of freshmen could also be intermediate between that of school and university. Problems of maturity and adjustment would not be so great.

There is however little point in discussing in greater detail the difficulties of implementing a general education program in South Africa, when there has been no acceptance in principle of its desirability. The importance of specialization was outlined on pages 6 and 7. One of the keenest critics of general education is Lord James of Rusholme. His warning has been noted against an uncritical acceptance of the supposed dangers of over-specialization. The remedy may be worse than the disease, he says, and the complaint that too many specialists are lacking in culture sometimes rests on too narrow a definition of culture. [James, 1949, p. 71] He speaks scathingly of 'the simple-minded assumption that it is broadening to do anything as long as it is un-connected with what one like doing'. [James, 1949, p. 12]

Nevertheless in an oration on The content of education delivered at the London School of Economics and Political Science in December 1958, he concludes as follows. "Because the desirable content of education has expanded so remarkably, and because the background of home and society is no longer for many of our pupils an educative one, it is unrealistic to expect general education to be over at the school level. And further, many of the elements -- the politics, the philosophy, the appreciation of much literature -- which we would like to enter into the range of our educated man, demand a maturity that is simply not present in any but the most exceptional of our sixth formers. The conclusion, it seems to me, is obvious: that our universities must adopt a more positive responsibility than many of them now do for the general education of their pupils. How it is to be done is a matter for dispute: whether it be by lecture courses, or as I should hope by the use of the tutorial system, is something on which we must experiment. But we delude ourselves if we think that the schools alone can provide the stimulus and the

background to an adequate general education for the modern world. The element in American education which has aroused my greatest envy is the general cultural work for undergraduates in science and technology that one can see at Cal. Tech. or M.I.T." [James, 1959, p. 14]

CHAPTER 9.

THE MEANING OF GENERAL AND LIBERAL EDUCATION.

9.1. A WIDER OUTLOOK.

The first chapter concluded with a short consideration of a wider view of the purposes of general education, and implicit in that discussion was a definition of general education much wider than 'a study of what is not in the field of concentration'. The analysis of this point which appears in the Harvard report [pp. 64 - 73] is very often referred to in other works. A full statement is therefore given here.

9.11. The Harvard view.

"Education is not merely the imparting of knowledge but the cultivation of certain aptitudes and attitudes in the mind of the young ..... Education looks both to the nature of knowledge and to the good of man in society." The authors turn their attention to the latter aspect -- "more particularly to the traits and characteristics of mind fostered by education. By characteristics we mean aims so important as to prescribe how general education should be carried out and which abilities should be sought above all others in every part of it. These abilities, in our opinion, are: to think effectively, to communicate thought, to make relevant judgments, to discriminate among values. They are not in practice separable and are not to be developed in isolation. Nor can they be even analyzed in separation. Each is an indispensable coexistent function of a sanely growing mind. Nonetheless, since exposition requires that one thing be discussed at one time, our description of these abilities must take them up in turn." [Harvard report, 1955, pp. 64, 65]

By effective thinking is meant logical thinking, that is, the ability to draw sound conclusions from premises; relational thinking 'where the variables are numerous and their interactions too complicated for precise calculation'; and imaginative thinking, the use of the poet's sensuous images instead of the abstract conceptions of the scientist. "It may be noted that

the three phases of effective thinking ..... correspond roughly to the three divisions of learning, the natural sciences, the social studies, and the humanities, respectively."

Logical thinking in this context is not what a student would learn in a course on formal logic. It is the ability to practise logical skills in practical situations -- in choosing a career, in deciding whom to vote for, or what house to buy, or even in choosing a wife. "Logical thinking is the capacity to extract universal truths from particular cases and, in turn, to infer particulars from general laws. More strictly, it is the ability to discern a pattern of relationships -- on the one hand to analyze a problem into its component elements, and on the other to recombine these, often by the use of imaginative insight, so as to reach a solution. Its prototype is mathematics which, starting with a few selected postulates, makes exact deductions with certainty. Logical thinking is involved to a degree in the analysis of the structure of a painting as well as in that of a geometrical system. In moving toward a solution, the trained mind will have a sharp eye for the relevant factors while zealously excluding all that is irrelevant; and it will arrange the relevant factors according to weight. For instance, in voting during a presidential election our citizen should consider whether the candidate has sound policies, whether he has the ability to get on with Congress, whether he has a good grasp of international relations, and, in these troubled times, whether he has an understanding of military strategy. These are some of the factors which are relevant to the problem in hand. But the looks of the candidate most probably, and his religious denomination surely, are irrelevant. Prejudice brings in irrelevancies and logic should keep them out." [Ibid., pp. 65, 66]

Relational thinking involves certain broad mental skills. "In the fields of the social studies and history, and in the problems of daily life, there are large areas where evidence is incomplete, and may never be completed. Sometimes the evidence may also be untrustworthy; but if the situation is practical, a decision must be made." Thinking must never violate the laws of logic. But the empirical man will not be

satisfied merely with noting the facts; he will consider the implications. "He knows when he knows and when he does not; he does not mistake opinion for knowledge .... In coping with complex and fluid situations we need thinking which is relational and which searches for crossbearings between areas; this is thinking in a context."

Imaginative thinking "is most valuable in the field of human relations. Statistics are useful, but statistics alone will not carry us very far in the understanding of human beings. We need an imagination delicately sensitive to the hopes and the fears, the qualities and the flaws of our fellow man, and which can invoke a total personality in its concrete fullness. In practical matters, imagination supplies the ability to break with habit and routine, to see beyond the obvious and to envisage new alternatives; it is the spur of the inventor and the revolutionary, no less than of the artist." [p. 67]

Much has been said in these pages on communication, and indeed one whole chapter, and many more paragraphs, have been devoted to it. Two quotations may help to sum up. "Communication -- the ability to express oneself so as to be understood by others -- is obviously inseparable from effective thinking. In most thinking, one is talking to oneself; and good speech and writing are the visible test and sign of good thinking. Conversely, to speak clearly one must have clear ideas. You cannot say something unless you have something to say; but in order to express your ideas properly you also need some skill in communication. There is something else too: the honest intent to make your ideas known, as against the desire to deceive or merely to conceal. Communication is not speaking only but listening as well; you cannot succeed in communicating your ideas unless the other person wishes to hear and knows how to listen. As there are two kinds of language, oral and written, communication breaks up into the four related skills of speaking and listening, writing and reading." In those words, we have an excellent example of good thinking -- clear ideas expressed lucidly. A warning is given against converting communication into propaganda, whether it be political propaganda, or

economic propaganda. "Effective communication depends on the possession not only of skills such as clear thinking and cogent expression but of moral qualities as well, such as candor."....."Language needs to be neither high learning nor high literature in order to be communication. What we have in mind is the language of a businessman writing a plain and crisp letter, of a scientist making a report, of a citizen asking straight questions, of human beings arguing together on some matter of common interest." [p. 69]

The making of relevant judgments. "It is not now a question of apprehending more relationships within ideas but of applying these to actual facts. The most competent instructor of military science is not necessarily the best officer in the field ..... A course on poetics, however good, [does not] make a good poet. [Nor is it] the power to distinguish or state the universal formula ..... which heightens our skill. It is the power to use the formula in the new concrete situations as they fleet past us which education aims to advance .... The translation from theory to practice involves an art all its own and requires the skill we call sagacity or judgment." Even though it be an art, and not a science, "the teacher can do a great deal nonetheless; he can relate theoretical content to the student's life at every feasible point, and he can deliberately simulate in the classroom situations from life. Finally, he can bring concrete reports of actual cases for discussion with the students. The essential thing is that the teacher should be constantly aware of the ultimate objectives, never letting means obscure ends, and be persistent in directing the attention of the student from the symbols to the things they symbolize." [p. 71]

Discrimination among values involves choice. Choice implies both a knowledge of values and a commitment to them. "Values are of many kinds. There are the obvious values of character, like fair play, courage, self-control, the impulse of beneficence and humanity; there are the intellectual values, like the love of truth and the respect for the intellectual enterprise in all its forms; there are the aesthetic values, like good taste and the appreciation of beauty." It will be agreed that the school has an

obligation to be engaged directly in moral values. But is the function of the university not "to train the mind and the mind only? ..... It is not easy, indeed it is impossible, to separate effective thinking from character. [At the very least the university must recognize that] an essential factor in the advancement of knowledge is intellectual integrity, the suppression of all wishful thinking, and the strictest regard for the claims of evidence. The universal community of educated men is a fellowship of ideals as well as of beliefs." [p. 72]

"General education, we repeat, must consciously aim at these abilities: at effective thinking, communication, the making of relevant judgments, and the discrimination of values."[1]

9.12. Some different emphases.

Two statements from Canada, and two from England follow.

At McGill University, the honours degree "is governed fundamentally by the belief that a relatively intense study of one field, not too narrowly limited, is the best medium of general education. A student who has gone sufficiently far in the study of one subject to have become aware of the assumptions on which that study rests and of the difficulties which its methods have been shaped to meet, and who has been introduced to the kind of material with which more advanced work in the subject is concerned, has probably undergone a better general mental discipline than the student who has sampled a variety of useful, but not very deeply developed, studies." (See section 4.61, p. 200 above)

Dr. C.T. Bissell, President of the University of Toronto, has said: "This university is committed to a high degree of specialization. I realize that specialization has become a nasty word in educational circles, but this arises chiefly from a narrow set of presuppositions. Specialization can be narrow if it is associated with mastery of a technique and with a sullen addiction to intellectual isolation. But specialization when it is associated with the study of one of the major disciplines, whether in the humanities,

---

1. See a similar analysis, specifically applied to pre-legal education, on pages 328 to 331.

the social sciences or the sciences, is a major road to liberal education. It provides depth, and if the subject or subjects of specialization are taught historically and philosophically, it will encourage the student to make his own forays into other areas and to make associations and connections with other disciplines." (See sections 1.13, page 6, and 4.63, page 204).

Lord James of Rusholme says that "the most important point that is too often overlooked is the educational value of a fairly deep study of a limited field, even in the upper forms of schools. There is no substitute for this in a patchwork of superficial studies without depth, and revealing no possibility for genuine standards of scholarship." [James, 1949, p. 71]

Mr. J.S. Fulton, Vice-Chancellor of the new University of Sussex has said that "the function of the university is to bring the young people entrusted to it to the height of their intellectual powers by setting them to do a very exacting academic task.[1] I emphasize the word 'academic' because the practice of our universities has been based upon the assumption that young men destined for one of a great variety of tasks in life -- in public life, in the schools, in law or in the Church, in the public services, in industry and commerce -- will be better prepared if for three or four formative and very important years of their lives they undertake at the university courses of study in common with those who are going to be scholars. There can be no doubt that this tradition has left its mark indelibly upon the social, political, educational and industrial fabric of this country. It has given the universities public responsibility and prevented them from being what are called 'ivory towers'." [Fulton, 1961, p. 843]

The criticism of superficiality in general education has been mentioned many times in these pages. A far more serious challenge to general education arises from statements such as follow. "A relatively intense study of one field ..... is the best medium of

---

1. Nevertheless, Fulton goes on to say [p. 847]: "I am convinced that the idea of the single-subject Honours course as the sole, or at any rate the best, means of educating our ablest young men and women, has been pushed too far ..... [At the new University of Sussex] there are to be no Departments.....; instead there will be Schools." (See page 183)

general education." "Specialization when it is associated with the study of one of the major disciplines, whether in the humanities, the social sciences, or the sciences, is a major road to liberal education." "..... the educational value of a fairly deep study of a limited field ....." "The function of the university is to bring the young people entrusted to it to the height of their intellectual powers by setting them to do a very exacting task."

It is this statement that 'deep-digging' provides not only a specialist education, but also the values claimed for a general education, to which a reply must be given.

Firstly, it should be repeated that the generalist acknowledges that this is an age of specialization, and that specialist study is all-important. Indeed, in the pages which follow, the point will be made that a liberal, or liberating education must have a specialist component, to achieve just the values associated with deep-digging. It is the specialist claim to be able to do, even to be able to do better, what the generalist aims to do, which must be met. No doubt Doctors of Philosophy in History or Chemistry think effectively in their fields, make relevant judgments, discriminate among values, and can communicate their knowledge. But if they could do so equally well in the practical affairs of life, far more Doctors of Philosophy would be 'kings', and Will Rogers would never have said: "There is nothing so foolish as an educated man if you can get him off the thing he was educated in." Burchard states that "it is customary to say that studies in mathematics and science develop a habit of logical thought. I myself have little confidence in the transferability of this quality. To quote Plato 'I have scarcely ever known a mathematician who was capable of reasoning'. I have not noticed that as political thinkers, say, scientists have exhibited more logical qualities than others." [1953, p. II 65]

9.13. Transfer of training.

It has already been noted that the authors of the Harvard report [p. 74] say that "one of the few clear facts about the unclear and much disputed question of the transfer of powers from one subject to another is

that it will tend not to take place unless it is deliberately planned for and worked for." McGrath says that "recent research on transfer of training shows that when teaching consciously aims at the generalization of experience much transfer actually occurs. It is now common doctrine, therefore, that students should be instructed in the fundamental principles of a subject with such application of these principles to their own fields as may be desirable for purposes of illustration. If this method of teaching is employed, they should acquire a meaningful, not a fragmentary or superficial,knowledge, which they can apply in a variety of life situations." [McGrath, 1959a, p. 54]

Peterson has this to say on the subject.[1960,pp.17,18]

> "We all, dons and schoolmasters alike, are accustomed to say that the purpose of Latin Prose is not the acquisition of a certain skill in antiquarian pastiche but the training in clarity of thought -- the art of communication which is as it were a by-product of this activity. But we tend to assume too readily, I think, that this by-product will come automatically. Much has been said, in defence of the English rather than the European, sixth form course about the value of the whole course forming a unity and about the iniquity of studying 'unrelated' subjects ..... For the English sixth form today there seem to be two serious questions. The first is how far similarities in subject matter do in fact automatically produce a 'unity'; the second is how far a curriculum which is unified in subject matter, in the sense that it is limited to studies of an essentially similar nature, helps or hinders a student in unifying his experience."
>
> "The answer which we give to the second depends largely on the answer to the first. Clearly if sixth formers cannot really apprehend a unity in the allied subject of Physics, Chemistry and Mathematics, or English, French and History, we can hardly hope to make a unity out of a wider range of experience. There seems to be considerable doubt today whether even on the Science side they do so; in subjects as closely allied as Physics and Applied Mathematics teachers complain that their pupils treat them as just two, watertight 'A levels'. The Crowther Report is even more sceptical about the combinations commonly taken on the Arts side. Is it not possible however that the failure to make a unity even within these narrowly limited spheres is simply due to a failure in our teaching methods? Possibly because all our Sixth Form teaching is so closely derived from the methods of the unified Classical course, we have too readily assumed that a 'unity' in the subject matter will automatically be transferred to the mind of the pupil. Once we realise that he must

be consciously helped to see the unifying factors, then perhaps we can aim at the far more important task of helping him to build a unity out of diversity. After all a sense of unity imposed by limiting the gaze to a narrow field might, even if it were acquired, prove in the long run more of a hindrance than a help. This is where [1] the fifth block of seven periods in our programme has an essential part to play. If sixth formers are to begin to get a conception of the true unity of knowledge -- not the artificial unity created by limiting their experience to one aspect -- then the differences in the different modes of mental activity must be made explicit to them. They must have time and guidance in which to see that what is a proof in the Mathematics which they pursue on Tuesday is not the same kind of thing as a proof in the History, which follows on Wednesday; that the truth of George Eliot or Joseph Conrad is not the same thing as the truth of Mendel or Max Plank; and yet that there are similarities as well as differences. The fifth block should therefore include a course, similar to the best and not the worst of the Classe de Philosophie, on the methodology of the 'subjects'. It may be suggested that this is beyond the capacity of the average sixth former. I do not think so. It is certainly not beyond their interests. If it were beyond them it would be a condemnation of all our present programmes. For we have agreed that it is not the factual knowledge but the 'learning to learn' which is the real purpose of these programmes; and if the pupils cannot understand the methods and limitations of the subject even when they are discussed and explained, it is not likely that they will absorb them without understanding and without explanation. After all we are not concerned that the Sixth Form Historian, or Physicist or Classic shall in adult life be able to answer examination questions in History, Physics or Classics, but that he shall have acquired in those studies an intellectual capacity and outlook which he can apply to managing a business, a colony, a newspaper or a parish. We know too little about the conditions under which Transfer of Training at this sophisticated level takes place, but if we can extrapolate at all from what we know of the process at earlier ages, then it is most important that common elements in modes of thinking should be made explicit."

This fifth block advocated by Peterson is evidently meant to be more than an opportunity to understand methodologies. It is in fact designed to provide an occasion for planned transfer. In this sense, general education <u>is</u> planned transfer, and teachers of general studies must be made to understand this.

Dewey criticized 'education as training of faculties'.

---

1. See page 159.

> "In its classic form this theory was expressed by Locke. On the one hand, the outer world presents the material or content of knowledge through passively received sensations. On the other hand, the mind has certain ready powers, attention, observation, retention, comparison, abstraction, compounding, etc. Knowledge results if the mind discriminates and combines things as they are united and divided in nature itself. But the important thing for education is the exercise or practice of the faculties of the mind till they become thoroughly established habitudes. The analogy constantly employed is that of a billiard player or gymnast, who by repeated use of certain muscles in a uniform way at last secures automatic skill. ..... Locke's statements fitted well into the dualism of his day. It seemed to do justice to both mind and matter, the individual and the world."
>
> [Dewey, 1916, pp. 71, 72]

Dewey believed that faculties were mythological. There are rather an indefinite variety of tendencies, interweaving with one another in all kinds of subtle ways. They are not latent. They are tendencies to respond to changes in the environment so as to bring about other changes. Training is not mere exercise. It involves a selection from responses of those adapted to utilization of the stimulus. The more specialized a reaction, the less transferable it is.

> "Wherever an activity is broad in scope (that is, involves the coördinating of a large variety of sub-activities), and is constantly and unexpectedly obliged to change direction in its progressive development, general education is bound to result. For this is what 'general' means; broad and flexible. In practice, education meets these conditions, and hence is general, in the degree in which it takes account of social relationships. A person may become expert in technical philosophy, or philology, or mathematics or engineering or financiering, and be inept and ill-advised in his action and judgment outside of his specialty. If however his concern with these technical subject matters has been connected with human activities having social breadth, the range of active response called into play and flexibly integrated is much wider. Isolation of subject matter from a social context is the chief obstruction in current practice to securing a general training of mind."
>
> [Dewey, 1916, pp. 78, 79]

The subject may be summed up in the words of G.W. Allport, who, in the 1960 edition of his Personality: a psychological interpretation says that the problem of transfer"has passed through two distinct periods in reference to this important question,

> and is now slowly emerging into a third. The first period was characterized by blind faith in limitless transfer, wherein it was assumed that any type of training improved mental power in general, or at least the power of some broad faculty of the mind, such as reasoning ability or memory. Even today, in less 'progressive' schools, teachers believe, and assure their students, that the study of geometry or Latin, though unsavory in itself, is valuable because it automatically trains 'logical power', or 'memory', or perhaps 'will-power'."
>
> "Thorndike[1] ..... made a devastating attack upon this widespread theory of 'formal discipline', and instituted the second epoch. In 1901 he published, in collaboration with R.S. Woodworth, one of the earliest experimental investigations. This study, according to Gates, 'resulted in a complete overthrow of the older educational theory of formal discipline. In place of this doctrine was offered the theory of transfer of training, which, in brief, states that improvement in thinking, reasoning, neatness, honesty, and the like, is to be found in the development of innumerable particular habits, and that these habits are likely to remain imbedded in the situation in which they are developed. A corollary to the theory is that such habits transfer from a situation in which they were developed to other situations roughly in proportion to the degree to which the two settings have elements in common'."[pp. 263,264]

Allport rejects the doctrine of partial identity, and inaugurates the third epoch with his theory of <u>generalization</u>. He quotes evidence to show that "time and again it appears that identical elements have no power to effect transfer. Only when a general principle is <u>understood as applicable</u> to two or more fields does the training in one carry over to the others." He rejects hypothetical identical elements, and says: "Evidence favors a theory of the opposite order, one in which integration and generalization play the leading part. Here transfer effects depend chiefly upon the equivalence of meaning to the individual of the fields that confront him. If they are similar, transfer takes place."

Finally, it is important to remember that neither Thorndike nor Dewey ever combatted the idea that the mind <u>should</u> be disciplined. Their question was: <u>how</u>? [Jones, 1954, p. 30]

---

1. See page 357.

9.2. AN ATTEMPT AT DEFINITIONS.

The terms general education, general studies, liberal education, liberal studies have been used almost interchangeably in these pages. It is not easy to define them with precision.

"The term 'general education', like the terms 'liberty' and 'equality', has acquired a wide range of meanings, including some irreconcilable ones." [Faust, 1950, p. 4] The statement that "one major criticism is that [general education] is really a meaningless term since people define it in almost any way their fancies dictate" has already been noted. [Mayhew, 1960b, p. 9] At Yale and Princeton, distribution is required, but the term 'general education' is not used. At Columbia, home of the famous 'Contemporary civilization' course, the term is not popular; the faculty do not like it, and students would probably be surprised to learn that Columbia College has a general education program.

The difficulty of defining 'general education' will be evident therefore when there is so much variation in meaning in the country of its origin, even though it was first used as early as 1837. It is harder still to define 'liberal education' since its meaning has changed with the centuries from the days of Aristotle.

9.21. The meaning of liberal education.

The 1956 issue of the third edition (1944) of the Shorter Oxford dictionary contains the following:

> LIBERAL
> ad. L. liberalis pertaining to a free man, f. liber free.
> A. adj. 1. Orig., epithet of those 'arts' or 'sciences' that were 'worthy of a free man'; opp. to servile or mechanical. Later, of conditions, pursuits, etc.: 'Becoming a gentleman' (J.). Now rare, exc. of education, etc.: Directed to general intellectual culture; not narrowly technical or professional.
> 2. Free in giving; generous, open-hearted. Abundant, ample.
> 3. Free from restraint; free in speech or action.
> 4. Free from narrow prejudice - especially re reforms 1846.
> 5. Of political opinions; favourable to changes and reforms tending in the direction of democracy. Hence epithet of a party; opposite to conservative.

The first meaning only is used in this dissertation.

If liberal education is an education 'becoming a gentleman', what then is a 'gentleman'? 'Liberal Education makes ..... the gentleman', said Newman. 'It is well to be a gentleman, it is well to have a cultivated intellect, a delicate taste, a candid, equitable, dispassionate mind, a noble and courteous bearing in the conduct of life'. [Newman, 1852, p. 45][1]

Dewey in a discussion on the 'most deep-seated antithesis ..... in educational history', that of labour and leisure, refers to the Greek insistence that 'means are menial, the serviceable is servile', and that 'only the education that makes for power to know as an end in itself, without reference to the practice even of civic duties, is truly liberal or free'. Aristotle simply described the life that was before him. 'If the Aristotelean conception represented just Aristotle's personal view, it would be a more or less interesting historical curiosity', but for the very real social confusion today between liberal and vocational education, one based on 'intellectual confusion and moral hypocrisy'. [Dewey, 1916, pp. 293 - 299]

McGrath has analysed the changing character of liberal education. [1959a, pp. 6 - 25] In ancient Greece the upper tenth or twentieth formed an intellectual élite. Education was designed to perpetuate this aristocracy in government. They were to be economically as well as politically free. Work was degrading for them. A vocational education was illiberal and unfit for free men.

The Romans added little to the idea of a liberal education. By the fourth century A.D. the seven liberal arts had been formulated: the trivium (grammar, rhetoric, and logic), and the quadrivium (arithmetic, geometry, music, and astronomy), and they became the core of higher education for a thousand years. In the Middle Ages, education was concerned more with intellectual and spiritual than with practical affairs, a cleavage of educational purposes which has persisted to the present. This curriculum was designed to serve the needs of the leaders of ecclesiastical society.

In the early days of Oxford and Cambridge "gentlemen's sons were too earnestly engaged in

---

1. See Ashby's statement on p. 213.

exterminating one another to have time for study." British universities of the thirteenth to fifteenth centuries "served a clientele which consisted largely of the sons of families of little or no wealth, youth who lived simple lives supported by incomes from endowments or by wealthy patrons of learning. In this respect the British universities of the medieval period served a clientele very much like the students who attend American colleges and universities today. This fact is seldom brought out by those who endorse the aristocratic educational conceptions of the Renaissance and succeeding periods."

"The men of the Renaissance discovered and became enamoured of the literary and philosophical works of ancient Greece ..... As higher education became identified with the ancient classics, and was once again looked upon as 'polite learning', the original Greek conception of liberal education for an aristocratic life of social leadership and the activities of a leisure class became firmly reestablished ..... Once again liberal education was designed to serve the lives and activities of the socially élite..... With the establishment of Harvard College [in 1636] the prevailing British aristocratic conception of education and the society it was to serve was transplanted into the soil of New England ..... [Today] liberal education is no longer designed for a small percentage of the population, the socially élite ..... It no longer has a standard content of limited subject matter ..... [It] is no longer intended solely for the directive classes."

McGrath then proceeds to the analysis of the purposes of <u>liberal education</u> today, which is summarized on pages 40 and 41. This analysis is in essential agreement with that of the authors of the Harvard report already described in this chapter in their discussion of <u>general education</u>.

How then shall <u>liberal</u> and <u>general</u> education be distinguished? In the view of Lowell, "general education was ..... that part of a liberal education which contributed breadth of learning, whereas liberal education was the product of a learning which unites knowledge of the methods of many fields with a mastery of the content and methods of one field." [Thomas, 1962, p. 55]

This is a very significant distinction. The values of a study in depth of one field, so eloquently argued by 'specialists' are not denied by 'generalists'. It is their claim that a study in 'depth' in one field will automatically provide 'breadth' as well which is here contested. In a liberal education there must be a great deal of time for 'depth', but it is incomplete without a 'breadth' component, which only general education can provide.

The distinction must not be made too sharply however. The student must always remember that it is specialist study which can best provide that attainment of scholarship, which is liberal in that it liberates him from all prejudice and ignorance in his own field. General studies put the student on the road to freedom from prejudice and ignorance in all other fields. In his special studies, a student must through his teachers, or by his own efforts, deliberately plan the transfer of intellectual freedom, hard-won in his own field, to all other fields. The argument comes back to the point that the importance of general education can best be seen in the context of the special, and the importance of specialist education can best be seen in the context of the general.[1]

A.N. Whitehead has no time for the 'neat antitheses' of general and special. "There is only one subject-matter for education and that is Life in all its manifestations ..... You may not divide the seamless coat of learning." [1932, pp. 10 and 18] In an oft-repeated quotation Whitehead decries the separation of liberal and vocational studies:

> "The antithesis between a technical and a liberal education is fallacious. There can be no adequate technical education which is not liberal, and no liberal education which is not technical: that is, no education which does not impart both technique and intellectual vision. In simpler language, education should turn out the pupil with something he knows well and something he can do well."
>
> [Ibid., p. 74]

Dewey points out that an education which centres about a vocation is not 'narrowly practical [or] merely pecuniary' .....

---

1. See page 10.

> "The opposite of a career is neither leisure nor culture, but aimlessness, capriciousness, the absence of cumulative achievement in experience, on the personal side, and idle display, parasitic dependence upon the others, on the social side. Occupation ..... includes the development of artistic capacity of any kind, of special scientific ability, of effective citizenship, as well as professional and business occupations, to say nothing of mechanical labour or engagement in gainful pursuits ..... Each individual has of necessity a variety of callings, in each of which he should be intelligently effective. Any one occupation loses its meaning and becomes a routine keeping busy at something in the degree in which it is isolated from other interests. No one is just an artist and nothing else, and in so far as one approximates that condition, he is so much the less developed human being; he is a kind of monstrosity. He must, at some period of his life, be a member of a family; he must have friends and compansions; he must either support himself or be supported by others, and thus he has a business career. He is a member of some organized political unit, and so on. We naturally name his vocation from that one of the callings which distinguishes him, rather than from those which he has in common with all others. But we should not allow ourselves to be so subject to words as to ignore and virtually deny his other callings when it comes to a consideration of the vocational phases of education."
>
> [Dewey, 1916, pp. 358 - 360]

9.22. The meaning of general education.

To note the falseness of these antitheses is not to say that liberal education and general education are identical. If Lowell's statement that general education is that part of a liberal education which contributes breadth to learning, how shall general education be characterized? To say what general education does mean in the United States is not possible, because of the variations in practice; to say what general education should mean in the United States would be presumptuous on the part of a foreigner. The most that can be attempted is a broad outline of what it might mean, if freshly introduced into a country which provides little or no general education. The Republic of South Africa is such a country.

Coverage of the humanities, the social sciences, and the natural sciences.

Firstly, instead of degree regulations laying down that arts students may study not more than so many science subjects, and vice versa, the prescription

should read 'not less than'. A student majoring in any one field, should study not less than so many subjects in the other fields. Indeed, even in a student's specialist field there is much to be said for a general education course, instead of a course planned as an introduction to specialization.

Interdisciplinary courses.

Secondly, at least one course should cut across departmental boundaries -- probably a course in 'The foundations of western civilization'. The teachers of this course should use the opportunity to discuss inter-relations of subjects, and the dangers of compartmentalization.

Communication.

Thirdly, communication in the simplest sense of the ability to express oneself clearly so as to be understood by others in speech and in writing, and in the simplest language of mathematics and statistics, is all-important. To read and to listen sensibly are no less essential than to speak and to write clearly.

General.

Fourthly, teachers must constantly help students to think effectively, to make relevant judgments, and to discriminate among values. This must be achieved not only, indeed not primarily, through subjects outside the field of specialization. The good teacher will use the academic attitudes and attainments achieved in the special field to plan transfer to all fields, and to turn mere knowledge of subject-matter into social wisdom.

If this appears to be 'up in the clouds', a concrete example will be valuable. A mathematics major studying non-Euclidean geometries, will learn of attempts to prove Euclid's postulate by the reductio ad absurdum method. In the 1830's Lobachevski and Bolyai showed that the parallel postulate could not be proved by this method, and indeed developed a new non-Euclidean geometry. Euclid, in effect, assumed that only one straight line could be drawn through a given point parallel to a given straight line. Lobachevski and Bolyai assumed that many (an infinite number in fact) lines could be so drawn. Their geometry consists of a set of self-consistent propositions, one of which is that the sum of the angles of a triangle is less than two right angles. In Euclidean geometry, the sum

of the angles of a triangle is two right angles. Here we have apparently two propositions, which contradict each other. Which is right? The answer is that the fact that they appear to contradict each other does not mean that one is wrong. Given the appropriate basic assumption, the proposition which follows is correct, in both cases. Which assumption is correct? This question has no meaning, because an assumption is an unproved proposition. The discussion can be taken further by considering the geometry of Riemann in which the parallel postulate states that no lines can be drawn through a given point parallel to a given line. (It also involves the assumption that a line is finite in length). In Riemann's geometry, the sum of the angles of a triangle is always greater than two right angles.

The application of these points to controversial matters of religion, race, and politics can lead to an interesting discussion of tolerance and prejudice. It will become evident that, if two views differ, it does not necessarilly follow logically that one is wrong. Possibly they are based on different assumptions, and each may be correct in the sense of being part of a self-consistent system.

It should be added that unless this transfer from mathematics to social problems is deliberately planned, the step will not be made by the average student. It is important to realize that a teacher of general studies would not have to be a mathematician to make this point. Conant's statement that "the student in high school, in college and in graduate school must be concerned, in part at least, with the words 'right' and 'wrong' in both the ethical and mathematical sense" could be analysed with great profit in this connection. [Harvard report, 1945, ix]

9.3. THE AIMS OF UNIVERSITIES.[1]

9.31. The views of Mill and Newman.

Many of the comments of John Stuart Mill in his address as Rector to the University of St. Andrews in 1867 might well be repeated in the United States in 1967. Some examples follow.

He believed that universities should not be

---

1. See page 21.

primarily places of professional education, although schools of law, medicine, and engineering might well be associated with them. "Whether those whose speciality they are, will learn them as a branch of intelligence or as a mere trade, and whether, having learnt them, they will make a wise and conscientious use of them or the reverse, depends less on the manner in which are taught their profession, than upon what sort of minds they bring to it -- what kind of intelligence, and of conscience, the general system of education has developed in them. Men are men before they are lawyers, or physicians, or merchants, or manufacturers; and if you make them capable and sensible men, they will make themselves capable and sensible lawyers or physicians. What professional men should carry away with them from a University, is not professional knowledge, but that which should direct the use of their professional knowledge, and bring the light of general culture to illuminate the technicalities of a special pursuit. Men may be competent lawyers without general education, but it depends on general education to make them philosophic lawyers -- who demand, and are capable of apprehending, principles, instead of merely cramming their memory with details."

"Every department of knowledge becomes so loaded with details, that one who endeavours to know it with minute accuracy, must confine himself to a smaller and smaller portion of the whole extent: every science and art must be cut up into subdivisions, until each man's portion, the district which he thoroughly knows, bears about the same ratio to the whole range of useful knowledge that the art of putting on a pin's head does to the field of human industry. Now, if in order to know that little completely, it is necessary to remain wholly ignorant of all the rest, what will soon be the worth of a man, for any human purpose except his own infinitesimal fraction of human wants and requirements? His state will be even worse than that of simple ignorance. Experience proves that there is no one study or pursuit, which practised to the exclusion of all others, does not narrow and pervert the mind; breeding in it a class of prejudices special to that pursuit, besides a general prejudice, common to all narrow specialities, against large views, from an

incapacity to take in and appreciate the grounds of them."

"Let us understand, then, that it should be our aim in learning, not merely to know the one thing which is to be our principal occupation, as well as it can be known, but to do this and also to know something of all the great subjects of human interest: taking care to know that something accurately; marking well the dividing line between what we know accurately and what we do not; and remembering that our object should be to obtain a true view of nature and life in their broad outline." [Mill, 1867, pp. 21, 27 - 29]

Cardinal Newman put similar thoughts into these words: "The man who has learned to think and to reason and to compare and to discriminate and to analyze, who has refined his taste, and formed his judgment, and sharpened his mental vision, will not indeed at once be a lawyer, or a pleader, or an orator, or a statesman, or a physician, or a good landlord, or a man of business, or a soldier, or an engineer, or a chemist, or a geologist, or an antiquarian, but he will be placed in that state of intellect in which he can take up any one of the sciences or callings I have referred to, or any other for which he has a taste or special talent, with an ease, a grace, a versatility, and a success to which another is a stranger." [Newman, 1852, p. 89] "A man of well improved faculties has the command of another's knowledge. A man without them, has not the command of his own ..... A man who has been trained to think upon one subject or for one subject only, will never be a good judge even in that one." [Ibid., pp. 96, 97: quoting from Davison]

9.32. Technological humanism.

One of the most profound of contemporary thoughts on the possibility of reconciling the claims of the specialists and the generalists may well be that of Ashby who has said that 'technology ..... could become the cement between science and humanism'. [Ashby, 1958a, p. 82]

The sub-title of his book Technology and the Academics is An essay on universities and the scientific revolution. He describes the intellectual revolution which began with Galileo and Harvey and Newton, and in which British scientists played a notable part. But

the scientific revolution occurred not through, but in spite of the English universities. Priestley, Cavendish, Rumford, Davy, Dalton, Herschel, and Faraday worked outside universities.

The German universities pursued the concept of Wissenschaft -- the university as a centre for research, the empirical approach to knowledge. The word is not translatable as 'science'. It covers the objective and critical approach to all knowledge, including the humanities. Nevertheless the flow of scientific thought into Oxford and Cambridge was ..... held up for a generation by the mystique of 'liberal education'. The prestige of German universities rose to unparalleled heights. They became the envy of British and American scientists, who eagerly completed their education by attending a German university for a semester. However, by the 1870's the inoculation from Germany had taken, and the English universities began to produce a new kind of graduate -- the specialist. It was at this time that the German influence encouraged American universities to undertake post-graduate work. If it was difficult for British universities to adapt themselves to scientific thought, it is proving much more difficult for them to adapt to [the] technological thought of the 'crude engineer and the mere technologist'.

> "When we anatomise British universities to discover what their purpose is we receive a mixed answer. There has been an accretion of functions over the centuries. From Bologna and Salerno comes the function of the university to train students for certain professions, like the church, medicine, and law. From Oxford and Cambridge comes the university's function as a nursery for gentlemen, statesmen, and administrators. From Göttingen and Berlin comes the function of the university as a centre for scholarship and research. From Charlottenburg and Zürich and Massachusetts comes the function of the university to be a staff college for technological experts and specialists. Some of these functionswere created by the scientific revolution; others were deeply influenced by it. The universities have responded to all of them and repudiated none; but adaptation is by no means complete. Form is not everywhere fitted to function. Indeed the cardinal problem facing universities today is how to reconcile these four different functions in one and the same institution. Our universities have not solved this problem. Each university has adopted its own temporary compromise, dictated by expediency. What is to be the long-term solution we simply do not know."
>
> "Here lies the cause of those symptoms of split personality which are evident in British

> universities today..... These symptoms of split personality are not caused by doubt as to whether any of the four functions of the university should be accepted or repudiated: for better or for worse all four have been accepted by universities and it is too late to have second thoughts about that now. The symptoms are caused simply by the fact that adaptation is incomplete." [Ibid., pp. 68, 69]

This then is one cause of the 'split personality': multiplicity of objectives. 'The antithesis between science and humanism has almost vanished, but it has been replaced by another antithesis, equally mischievous ..... specialisation versus a liberal education'. Ashby discusses voluntary lecture series, the foundation year at Keele, the influence of Hutchins and the Harvard report, the University of Melbourne (see page 225), and the studium generale of Germany. (See page 223).

He goes on to his point made above that the gentleman of a century ago, for which a liberal education was designed belonged to the leisured class, and knew nothing of technology. The gentleman of today must know something of technology, and may well work seventy hours a week.

> "A case could be made, therefore, for including technology among the ingredients of a liberal education. But technology in universities could be made to play a far more important part than this: it could become the cement between science and humanism. Far from being an un-assimilated activity in universities, it could become the agent for assimilating the traditional function of the university into the new age. For technology is inseparable from men and communities. In this respect technology differs from pure science. It is the essence of the scientific method that the human element must be eliminated. Science does not dispense with values but it does eliminate the variability of human response to values. It concerns itself only with phenomena upon which all qualified observers agree. It describes, measures, and classifies in such a way that variation due to human judgment is eliminated. Unlike science, technology concerns the applications of science to the needs of man and society. Therefore technology is inseparable from humanism. The technologist is up to his neck in human problems whether he likes it or not."
>
> [Ibid., pp. 81, 82]

9.33. To what ends?

Ashby lists four main functions: to train for the professions; to produce gentlemen, statesmen, and

administrators; to undertake scholarship and research; and to provide technological experts and specialists. He hopes the mischievous antithesis of specialist education versus liberal education can be resolved by a 'technological humanism'.

In these pages, the function of a university to pursue knowledge for its own sake, and the more usual notion in the mind of the student, to pursue knowledge for its vocational value, have been discussed. The first chapter went on to discuss the obligation of the university to train men to become leaders within and outwith their professions. If they are not to give leadership in society, then they must at least show a sense of responsible 'followership'. They must enjoy a rich leisure time, and provide a background of culture in the home. Surely no account of the functions of a university are complete which omits these objectives -- objectives achievable through general education primarily, rather than through special education. Can a university rest satisfied if its aims are entirely intellectual as in the Chicago College of Hutchins? Does a university go beyond its functions if it has the social aims of the General College of the University of Minnesota? To what ends? Vocational competence? Service to society? Knowledge for its own sake? And by what means?

These questions have been inadequately answered in these pages, and what has been said has been better said by others. Ashby provides some comfort: "Anything worth saying has been frequently said. Anything hitherto unsaid should be regarded with the gravest suspicion." At least the asking of these questions has a venerable history. Aristotle says in his Politics that "the existing practice [of education] is perplexing; no one knows on what principle it should proceed -- should the useful in life, or should virtue, or should higher knowledge, be the aim of our training; all three opinions have been entertained. Again, about the means there is no agreement." [Holstein, 1960, p.1]

Must a choice be made between various ends? The President of the University of South Florida, and the Principal of the University of Sussex recently had to make a choice when setting up new institutions, and this must always be done in a given place at a given time.

Can one argue for some one 'best' end -- irrespective of time and place? Some thinkers think this can be done and should be done. John Dewey however believed it was futile to try to establish the aim of education -- some one final aim which would subordinate all others to itself. Understanding the aims of education, he said, is like climbing peaks in a mountainous area. One can climb only one peak at a time, but the views from different peaks supplement one another. They are not incompatible or discordant. [Dewey, 1916, pp. 128 - 130]

A survey of the aims of education leads one through areas of mountainous country. There is the area of primary education, and the area of secondary education, and the area of undergraduate education, and the area of post-graduate education. This dissertation has dealt largely with the area of undergraduate education, with brief references to secondary education. In these areas, the highest range may well be named 'intellectual discipline'. Too many climbers explore -- very thoroughly no doubt -- only a few peaks of their choice in this region, and ignore the whole of the region which would repay exploration even if less thorough. They cannot be said to know their regions.

The purpose of these pages has been to describe the great diversity which exists in the practice of general education. The variations may however be classified under three headings. Just as three geometries arise from three different sets of assumptions, so general education practices follow, in the main, three different philosophical approaches.

9.4. THE PHILOSOPHICAL FOUNDATIONS OF GENERAL EDUCATION.

Dr. Harold Taylor, who was President of Sarah Lawrence College from 1945 to 1959, provided a valuable chapter in General education, part I of the fifty-first yearbook of the National Society for the Study of Education. [Taylor, 1952, pp. 20 - 45]

The impact of the views of John Dewey is widely recognized in the fields of nursery schools, primary schools, and secondary schools in the United States. His influence is much smaller at the tertiary level,

because colleges of liberal arts have been more influenced by classical humanists, and rationalists, and the traditional ideas of Europe -- except in the case of a few experimental colleges. The insecurities flowing from the cold war, and the uncertainties about America's moral and political struggle have led to conservatism, and a search for intellectual certainty, through philosophies based on dogma. "It is also to be expected that the programs of general education which receive most attention would be those which give most promise of providing an orderly and unified system of ideas and values. The common factor in all current programs of general education is the insistence upon unity, integration, and the development of liberal values. The growth in emphasis upon general education is due, as has often been said, to the necessity of reuniting the disparate and unrelated elements of the former college curriculums, the necessity of replacing the narrow specialism of that curriculum by a breadth of general knowledge, and the necessity for providing those forms of knowledge which will be useful to students, not merely for vocational purposes, but for introducing the liberal values of the arts and sciences into their lives."

The three general divisions of thought which Taylor identifies are: "first, the philosophy of rationalism, represented in its purest form in the Roman Catholic institutions and at St. John's College, Annapolis; second, the philosophy of neo-humanism or eclecticism, represented by the program of general education at Harvard College and Columbia College; third, the philosophy of naturalism or, more specifically, instrumentalism, represented by Antioch College, Sarah Lawrence College, Bennington, the experimental colleges, and various other experiments within the state universities, notably, the University of Minnesota. The concept of the community college, as proposed by the President's Commission on Higher Education bears a close relation to this philosophy." [Ibid., 1952, pp. 25, 26]

9.41. The philosophy of rationalism.

The neo-Thomist thinkers, led by Jacques Maritain, are particularly influential in Roman Catholic colleges. "Unity ..... is found in a system of absolute truths,

concerning the nature of man, his relation to God, and the hierarchy of being which makes up the Thomistic universe." Mortimer Adler, Robert M. Hutchins, and Mark van Doren, stress the importance of a study of prescribed texts in the Western tradition to discover universally applicable principles of thought and morality, "with man [occupying] a place .....above the animal and below the realm of pure spirit or God. In view of the fact that the distinctive factor in man is his rationality, the cultivation of man's reason is the sole aim of education, or, of life itself. Since the reason is a separate entity, cut off by definition from its social and physical origin, and is everywhere the same, education must be everywhere the same. The values and truths which are universal are to be found in the texts of the Western tradition, and the reason, which has its own proper business in thinking and in perceiving abstract ideas in their true relation, can discover truths which are intrinsic in the universe by the application of intellectual effort to the correct texts."

"The social philosophy implicit in this system, but rarely stated, is that of the protection and conserving of an orderly society. The values of that society are ethnocentric and are those of a small segment of the social order, the Roman Catholic clergy, the educational elite, the owners, the rulers, the philosophers, and the scholars of the Western world. It is a philosophy of education designed to preserve Western tradition and to gain unity by setting down a standard pattern of principles. In the relation of man to society, it implies a class sytem in which only those who show talent for the perception of abstract truths are capable of absorbing the materials of higher education. Those who are not fitted for abstract thought and are 'herd-minded' must be assigned to the vocations which keep the social system moving, and which support the structure in which the intellectual can carry on his work."

The only college, outside of Roman Catholic colleges to base an undergraduate curriculum on this philosophy, it has already been noted, is St. John's College. But in practically <u>all</u> general education programs, the <u>humanities</u> component is based on these

principles, especially when in the form of a 'core' curriculum. "In answer to the question, then, as to how can we bring unity into the disparate elements of contemporary knowledge, the rationalists have replied that a unity exists in nature, the great thinkers of the classical tradition have discovered it, and the function of general education is to bring these thinkers to the contemporary student, and, by the aid of scholars in the field who are familiar with the texts, teach them the meaning of the Western tradition and Western values." [Ibid., pp. 27 - 30]

9.42. Naturalism and instrumentalism.

This is in fact, the point of view of Taylor himself, and its practical application has been seen in the description of Sarah Lawrence College. (See page 302).

For the instrumentalist "truth .... is in process of being created from moment to moment, and the perspective from which one looks at the truths stated by others or created by one's self has a great deal to do with the truth which one finds ..... For the instrumentalist, there are no absolute truths or values ..... In place of a fixed aim or fixed principles for education, the instrumentalist position is that aims and principles are to be defined in terms of the growth of maturity and of personal qualities within the student and not in terms of an intellectual discipline for training the reason ....."

"In his view, to conceive truth as an hypothesis to be tested is not to relinquish one's grip on rational certainty but to take into account the fact that rational certainty depends upon many factors, some of which are nonrational."

"Reason and emotion, that is, knowing and wanting, are described as parts of an organism at work in ways natural to itself, and the emphasis is placed upon integration and continuity -- the integration of the passions and the intellect, of thought and action, of heredity and environment, of the individual and society, of the past and the present, of knowledge and values, of matter and mind. This marks a fundamental difference from the rationalist way of thinking, where

the method is to mark off segments of reality from each other, and to stress differences and discontinuities between concepts. For example, liberal education for the rationalist is separated from vocational education, the worker from the intellectual, the artist from the the scientist, the past from the present, truth from its context, and education itself is conceived of as a separate term for disciplines and training in the realm of ideas."

"Fundamentally, this is a difference in logic, with the rationalist using the Aristotelian system, or a logic which classifies thought into opposites, contraries, contradictories, or separate entities, and the instrumentalist system developed by Dewey, which makes logic a theory of inquiry whose theory changes as new concepts are developed. Behind this difference is the ultimate distinction between the idea that thought is the primary reality of existence, and the idea that existence itself, and consciousness of that existence, is the primary reality out of which everything else comes".....

"In operation, an educational system of this kind places its emphasis upon the individual student and the quality of his experience and tries to arrange an educational environment in which it is possible for the individual to find his own way toward full development..... in place of the fixed aim and fixed subject matter of the rationalist and the eclecticism of the neo-humanist." [Ibid., pp. 35 - 38]

9.43. Eclecticism and neo-humanism.

Advocates of these views work within the European tradition, but propound no specific philosophical system which supports the program they recommend. This outlook is best illustrated by the Harvard report. "Since the middle of the nineteenth century, when it became clear to most sensitive social critics that the classical unity of the Greek-Judaic-Christian tradition was beginning to go, all secular and Protestant colleges have been in the process of change away from the rationalism of the eighteenth and nineteenth century educational theory toward a cultural pluralism and a philosophy more appropriate to the diversity of knowledge and the relativism of values.

This is true of the Protestant denominational colleges as well as the secular institutions, since, during the past hundred years, the rigidity of Protestant dogma and its educational accompaniment has been broken by the pressure of needs of the students and of society. The introduction of the elective system at Harvard in 1872 was the first mark of this change. What is now meant by the term "general education," as practiced at Harvard and, in one form or another, accepted as an accurate description by most other colleges, refers simply to the distribution of knowledge into the conventional four divisions and to the content of individual courses and the purposes for which they are taught. This purpose is stated as nonvocational, nonprofessional, and nonspecialist for cultivating a sense of values and for developing clear thinking and an understanding of the physical and social world, as well as an appreciation of the traditions of Western civilization. In the statement of aims, this philosophy differs very little from that of the rationalist."

"Perhaps the simplest statement of the philosophical foundations of the neo-humanist program would be that the ideas which can be discovered by a study of its literature, philosophy, science, arts, and institutions in Western culture will provide a common background of knowledge and value for all students in college. A knowledge of these ideas and values will create a commitment to democracy and Western ideas. The student who has learned something of the chief ideas which sustain the Western tradition in the arts and science will then be enabled to move forward to his work in becoming a specialist in a profession at the same time that he becomes a responsible citizen in his society." [Ibid., pp. 31, 34]

The three approaches described above are, in their purest form, distinct from one another and mutually exclusive. But individual colleges seldom arrange a curriculum which follows, in a thorough-going fashion, one of these approaches. The striking exceptions, so frequently quoted, are St. John's College with its humanist-traditionalist approach, and Sarah Lawrence College with its pragmatist-progressive program. In practice, most United States colleges have been influenced largely by the views

expressed in the Harvard report. Its eclecticism allows of wide variations on a central theme. This is its strength. It is also its weakness, for it is this very point which its critics find easiest to attack. Faust [1950, p. 13] says of the report: "Almost all current ideas, proposals, and projects are favorably regarded, with the consequence that no basis is provided for the elimination of the false and unnecessary or even for the determination of the relative importance of various educational proposals."

This dissertation gave prominence in early pages to Harvard College and to the Harvard report, and, with this warning of the vulnerability of the report, it concludes with the insistence of its authors that no one adequate philosophy of general education has yet been formulated.

Until about a century ago American colleges shared "the conviction that Christianity gives meaning and ultimate unity to all parts of the curriculum, indeed to the whole life of the college. Yet this solution is out of the question in publicly supported colleges and is practically, if not legally, impossible in most others..... A second solution has been sought in the tradition of Western culture as embodied in the great writings of the European and American past,..... [but there is] doubt whether the spirit of innovation and change expressing itself in a thousand modern forms is not itself as fundamental a part of Western culture as the spirit of tradition."

"A third solution recognizes precisely this spirit of change. It centers on contemporary life, and casting off the formal divisions of knowledge, tries to organize knowledge around actual problems and questions which young people may be expected to meet in mature life -- health, vocation, family, social issues, private standards, and the like. The difficulty here is a somewhat naïve dismissal of the fact that a great many people have contributed over a very long time to human knowledge, which in consequence has a dignity, almost an austerity, calling for some respect."

"Finally, the pragmatist solution sees in science and the scientific outlook this saving unity, urging that what is common to modern knowledge is not so much

any over-all scheme as a habit of meeting problems in a detached, experimental, observing spirit. Yet, if not the philosophers of pragmatism, at least their disciples seem in practice, if one may put it so, not pragmatic enough." [pp. 39, 40, 80]

"The search continues and must continue for some over-all logic ..... This search for a sound general education is as various and unending as the search for the good society iself .....There are many roads to Rome."

REFERENCES.

AACP, 1951.
Universities and Industry, (London and New York, Anglo-American Council on Productivity, 1951).

AALS, 1952.
Association of American Law Schools, 1952 Proceedings.

AAMC, 1958-59.
Admission requirements of American medical colleges, including Canada, 1958-59. (Evanston, Association of American Medical Colleges, 1958).

Aberdeen, 1961.
Faculty of Arts, University of Aberdeen, 1961-62.

Abrams, 1960.
ABRAMS, Irwin, and HATCH, W.R., Study abroad, (Washington, D.C., U.S. Department of Health, Education, and Welfare, OE-50016, 1960).

ACE, 1961.
Higher education in the United States, (Washington, D.C., American Council on Education, 1961).

ACPS, 1960.
Accreditation manual, (Chicago, The American Council on Pharmaceutical Education, 1960).

Aelhpy, 1953.
General education in school and college, a committee report by members of the faculties of Andover, Exeter, Lawrenceville, Harvard, Princeton, and Yale, (Cambridge, Harvard University Press, 1953).

Allport, 1937.
ALLPORT, Gordon W., Personality: a psychological interpretation, (New York, Henry Holt and Company, 1960).

Amherst, 1962-1963.
Amherst College bulletin, catalog 1962-1963 (vol. 52, no. 1, October, 1962).

Amherst, 1962.
This is Amherst, (Amherst College, 1962).

Antioch College bulletin, catalog issue for 1961-62 and 1962-63 sessions, vol. 57, no. 4, June, 1961.

Antioch handbook, 1960.
Antioch community handbook, 1960-61, (Yellow Springs, Antioch College).

Antioch syllabus, 1960.
Syllabus for students' programs of general education at Antioch College, (third edition, August, 1960).

Arons, 1959.
ARONS, A.B., "Structure, methods, and objectives, of the required freshman calculus-physics course at Amherst College", in American Journal of Physics, (vol. 27, no. 9, pp. 658-666, December, 1959).

ASEE, 1956.
General education in engineering, a report of the humanistic-social research project, (Urbana, University of Illinois, The American Society of Engineering Education, 1956).

Ashby, 1960.
ASHBY, Sir Eric, Founders' day golden jubilee graduation speech, (Durban, University of Natal gazette, vol. VI, no. 3, July, 1960).

Ashby, 1958a.
ASHBY, Sir Eric, Technology and the academics, an essay on universities and the scientific revolution, (London, Macmillan & Co., Ltd., 1958).

Ashby, 1958b.
ASHBY, Sir Eric, "Technological humanism" in the Journal of the Institution of Electrical Engineers, (vol. 4, no. 45, September, 1958).

Assistant Masters, 1962.
General education in grammar schools, a report issued by The Incorporated Association of Assistant Masters in Secondary Schools, (Cambridge University Press, 1962).

AUBC, 1962.
Report of a sub-committee on university entrance requirements in England and Wales, appointed by the Committee of Vice-Chancellors and Principals of the Universities of the United Kingdom, (London, Association of Universities of the British Commonwealth, 1962).

Bannister, 1954.
BANNISTER, Turpin C., ed., The architect at mid-century: evolution and achievement, (New York, Reinhold Publishing Corporation, 1954).

Barzun, 1945.
BARZUN, Jacques, Teacher in America, (Boston, Little, Brown and Company, Inc., 1959).

Bellamy, 1954.
BELLAMY, Francis R., ed., The architect at mid-century: conversations across the nation, (New York, Reinhold Publishing Corporation, 1954).

Bissell, 1959.
BISSELL, Claude, President's report for the year ended June, 1959, (University of Toronto, 1959).

Birmingham, 1962-63.
General studies, (Birmingham, College of Advanced Technology, 1962-63).

Birmingham, 1959.
Report of an enquiry into the suitability of the General Certificate of Education advanced level syllabuses in science as a preparation for direct entry into first degree courses in the Faculty of Science, (University of Birmingham, 1959).

Birmingham, 1956.
Report of the Committee appointed under Senate minute 15113(2), (Birmingham University, unpublished report, 1956).

Black, 1962.
BLACK, O.F., Academic success and failure among entrants in science and applied science at the University of Natal, (Durban, University of Natal, 1962).

Blauch, 1955.
BLAUCH, Lloyd E., ed., Education for the professions, (Washington, D.C., U.S. Department of Health, Education, and Welfare, 1955).

Blin-Stoyle, 1962.
BLIN-STOYLE, R.J., "Science at a new University, proposals for Sussex," in the Times Educational Supplement (1962, 19th January).

British Columbia, 1963-1964.
The University of British Columbia Calendar, forty-ninth session, (Vancouver, 1963, vol. 49, no. 1).

Buchler, 1954.
BUCHLER, Justus, A history of Columbia College on Morningside, (New York, Columbia University Press, 1954).

Bunnell, 1958.
BUNNELL, Kevin P., "Liberal education and American medicine" in the Journal of Medical Education, (April, 1958, vol. 33, no. 4).

Burchard, 1962.
BURCHARD, John E., Report of the Dean, School of Humanities and Social Science, (Cambridge, Massachusetts Institute of Technology, 1962).

Burchard, 1961.
BURCHARD, John E., Report of the Dean, School of Humanities and Social Science, (Cambridge, Massachusetts Institute of Technology, 1961).

Burchard, 1958.
BURCHARD, John E., Report of the Dean, School of Humanities and Social Science, (Cambridge, Massachusetts Institute of Technology, 1958).

Burchard, 1957.
BURCHARD, John E., "The role of the humanities and social sciences in the training of scientists and technologists" in The College Board Review, no. 33, (New York, College Entrance Examination Board, 1957, fall).

Burchard, 1953.
BURCHARD, John E., Dilemmas of general education, (Cambridge, Massachusetts Institute of Technology, 1953).

California, 40405.
California Administrative Code, title 5, chapter 5, paragraph 40405, on "requirements in general education," (California State Superintendent of Public Instruction).

Caltech, 1962.
Facts about Caltech, (Pasadena, California Institute of Technology, vol. 71, no. 2, June, 1962).

Caltech, 1960-1961.
Catalog, 1960-1961, (Pasadena, California Institute of Technology, vol. 69, no. 3, September, 1960).

Cape Town Arts and Science, 1963.
Faculty of Arts and Faculty of Science, (University of Cape Town, 1963).

Carlin, 1960.
CARLIN, Edward A., and BLACKMAN, Edward B., eds., McGRATH, Earl J., gen. ed., Curriculum building in general education, (Dubuque, Iowa, Wm. C. Brown Company, 1960).

Carman, 1944.
CARMAN, Harry James, "The making of leadership", in The Saturday review of literature, (vol. XXVII, no. 38, 16th September, 1944).

Carnegie, 1955.
Liberal Education, Summary of a discussion by the trustees of the Carnegie Foundation for the Advancement of Teaching on 16th November, 1955, (New York).

Cassidy, 1962.
CASSIDY, Harold Gomes, The sciences and the arts, a new alliance (New York, Harper and Brothers, 1962).

CEEB, 1962.
A guide to the Advanced Placement Program, 1962-63, (Princeton, N.J., College Entrance Examination Board, 1962).

Chicago, 1962-63.
The University of Chicago College announcements, 1962-63, (vol. LXII, no. 1, October 1, 1961).

Chicago, Business, 1960.
An art, a science, a profession, (Chicago University Graduate School of Business, 1960).

Christopherson, 1956.
CHRISTOPHERSON, D.G., Reflections on the education of engineers in a university, (London, Imperial College of Science and Technology, 1956).

Cohen, 1952.
COHEN, I. Bernard and WATSON, Fletcher G., General education in science, (Cambridge, Harvard University Press, 1952).

Cole, 1962.
Flexibility in the undergraduate curriculum, COLE, Charles C., and LEWIS, Lanora G., (Washington, D.C., U.S. Department of Health, Education, and Welfare, OE-50032, 1962).

Columbia, 1962.
Columbia College 1962-1963, (New York, Columbia University Bulletin, series 62, number 27, July 7, 1962).

Columbia, CWC, 1961/2.
Chapters in Western civilization, (New York, Columbia University Press, vol. 1, 1961, vol. 2, 1962).

Columbia, CC-A, 1960/1.
Contemporary civilization in the West, (New York, Columbia University Press, vol. 1, 1960, vol. 2, 1961).

Columbia, 1960.
Columbia College 1960-1961, (New York, Columbia University Bulletin, series 60, number 14, April 2, 1960).

Columbia, CC-B, 1955.
Man in contemporary society, 2 vols., (New York, Columbia University Press, 1955).

Columbia, 1946.
A college program in action, a review of working principles at Columbia College, (New York, Columbia University Press, 1946).

Conant, 1959.
CONANT, James B., The American high school today, (New York, McGraw-Hill Book Company, Inc., 1959).

Conant, 1956a.
CONANT, James B., Education and liberty, (Cambridge, Harvard University Press, 1956).

Conant, 1956b.
CONANT, James B., The Citadel of Learning, (New Haven, Yale University Press, 1956).

Commonwealth Universities, 1961.
British Commonwealth Universities Yearbook, (Edinburgh, R. and R. Clark, Ltd., 1961).

Crowther, 1959.
15 to 18, a report of the Central Advisory Council for Education (England), (London, Her Majesty's Stationery Office, 1959).

DEAS, 1962.
Annual report of the Department of Education, Arts and Science, for the calendar year 1962, (Pretoria, The Government Printer, R.P. 68/1962).

Delft, 1960-1961.
Studium generale, Delft, programma, 1e semester, 2e semester (Delft, Technische Hogeschool, 1960-1961).

Denmark, 1961.
Education (Copenhagen, Press Department, Ministry of Foreign Affairs, 1961).

Dentistry, 1960.
Dentistry in the United States, status, needs and recommendations: a summary of the report of the Commission on the Survey of Dentistry in the United States, (Washington, D.C., American Council on Education, 1960).

Dewey, 1916.
DEWEY, John., Democracy and education, (New York, The Macmillan Company, 1941).

Dressel, 1960a.
DRESSEL, Paul L., Liberal education and journalism, (New York, Bureau of Publications, Teachers College, Columbia University, 1960).

Dressel, 1960b.
DRESSEL, Paul L. and LORIMER, Margaret F., Attitudes of liberal arts faculty members toward liberal and professional education, (New York, Bureau of Publications, Teachers College, Columbia University, 1960).

Dressel, 1959.
DRESSEL, Paul L., MAYHEW, Lewis B., and McGRATH, Earl J., The liberal arts as viewed by faculty members in professional schools, (New York, Bureau of Publications, Teachers College, Columbia University, 1959).

Dressel, 1954.
DRESSEL, Paul L., and MAYHEW, Lewis B., General education: explorations in evaluation, (Washington, D.C., American Council on Education, 1954).

ECPD, 1959.
27th annual report for the year ending September 30, 1959 of the Engineers' Council for Professional Development, (New York).

Faust, 1950.
FAUST, Clarence H. and others, The idea and practice of general education, (University of Chicago Press, 1950).

Fisher, 1960.
FISHER, James A., ed., McGRATH, Earl J., gen. ed., The humanities in general education, (Dubuque, Iowa, Wm. C. Brown Company, 1960).

Ford, 1957.
They went to college early, (New York, The Fund for the Advancement of Education, 1957).

Fulton, 1961.
FULTON, J.S., "The future pattern of University education in the United Kingdom" in the Journal of the Royal Society of Arts, (London, vol. CIX, no. 5063, October, 1961).

Glasgow, 1961-1962.
Syllabus of the faculty of arts, (University of Glasgow, 1961-62).

Gordon, 1959.
GORDON, Robert Aaron, and HOWELL, James Edwin, Higher Education for business, (New York, Columbia University Press, 1959).

Griswold, 1959.
GRISWOLD, A. Whitney, Liberal education and the democratic ideal, and other essays, (New Haven, Yale University Press, 1959).

Harvard, 1962, August.
Information about Harvard College for prospective students, (Cambridge, Harvard University Press).

Harvard, 1962, July.
Courses in general education, (Cambridge, Harvard University Press).

Harvard, 1962, May.
Studies in the freshman year, (Cambridge, Harvard University Press).

Harvard, 1962, April.
Rules relating to College studies, (Cambridge, Harvard Press).

Harvard, 1960-1961.
The freshman seminar program, (Cambridge, Harvard College).

Harvard, 1960, September.
Engineering, applied physics, applied mathematics, in Harvard College, (Cambridge, Harvard University Press).

Harvard, 1960, August.
The class of 1960: its performance and immediate plans, (Cambridge, Office of Student Placement, Harvard University).

Harvard, 1960, March.
Harvard Medical School and School of Dental Medicine, 1959-1960, (Cambridge, Harvard University Press).

Harvard report, 1945.
General education in a free society, report of the Harvard Committee, (Cambridge, Harvard University Press, 1955).

Harvey Mudd, 1961-62.
Harvey Mudd College, science and engineering, (Claremont, California, vol. V, October, 1961).

Haun, 1960.
HAUN, Robert Ray, ed., McGRATH, Earl J., gen.ed., Science in general education, (Dubuque, Iowa, Wm. C. Brown Company, 1960).

Henderson, 1946.
HENDERSON, Algo D., and HALL, Dorothy, Antioch College: its design for liberal education, (New York, Harper and Brothers, 1946).

Henninger, 1959.
HENNINGER, G. Ross, The Technical Institute in America, (New York, McGraw-Hill Book Company, Inc., 1959).

HMSO, 1959.
Education in 1958, (London, Her Majesty's Stationery Office, 1959, Cmd. 777).

HMSO, 1957.
Liberal education in technical colleges, (London, Her Majesty's Stationery Office, Circular 323, 1957, May 13th).

Holstein, 1960.
HOLSTEIN, Edwin J., and McGRATH, Earl J., Liberal education and engineering, (New York, Bureau of Publications, Teachers College, Columbia, 1960).

Hungate, 1963.
HUNGATE, Thad L., and McGRATH, Earl J., A new trimester three-year degree program, (New York, Bureau of Publications, Teachers College, Columbia University, 1963).

Hutchins, 1944.
HUTCHINS, Robert Maynard, Education for freedom, (Baton Rouge, Louisiana State University Press, 1944).

Hutchins, 1936.
HUTCHINS, Robert Maynard, The higher learning in America, (New Haven, Yale University Press, 1936).

Imperial College, 1960-61.
Calendar 1960-61 of the Imperial College of Science and Technology, University of London.

India, 1957.
General education: report of the study team, (New Delhi, Ministry of Education, Government of India, publication no. 261, 1957).

Jackson, 1960.
JACKSON, Sir Willis, "The making of professional engineers" in The proceedings of the Institution of Electrical Engineers, (vol. 107, part A, no. 31, February, 1960).

James, 1959.
JAMES, Lord James of Rusholme, The content of education, (London School of Economics and Political Science, 1959).

James, 1949.
JAMES, Lord James of Rusholme, An essay on the content of education, (London, George G. Harrap & Co. Ltd., 1949).

JMB, 1963.
Matriculation examination handbook, (Pretoria, Joint Matriculation Board, 1963).

Jones, 1954.
JONES, Howard Mumford, "On the conflict between the 'liberal' arts' and the 'schools of education'" in The ACLS newsletter, vol. V, no. 2, 1954, (New York, American Council of Learned Societies).

Keeton, 1960. (For Keele, see below)
KEETON, Morris, Antioch restudied, a report on the Carnegie study of the Antioch educational program, 1955 to 1960, (Yellow Springs, Antioch College, August, 1960).

Keeton, 1957.
KEETON, Morris, and CHURCHILL, Ruth, "Antioch redesigns its general education program," in The Journal of General Education, (vol. X, no. 3, July, 1957).

Kennedy, 1955.
KENNEDY, Gail, ed., Education at Amherst - the new program, (New York, Harper and Brothers, 1955).

Kilian, 1953.
KILIAN, J.R., M.I.T. press release, 6th October, 1953, quoted in General and liberal educational content of professional curricula: engineering, (Washington, D.C., U.S. Department of Health, Education, and Welfare, 1954).

Knapp, 1953.
KNAPP, Robert H., and GREENBAUM, Joseph J., The younger American scholar: his collegiate origins, (University of Chicago Press, 1953).

Kronig, 1961.
KRONIG, R., Engineering education in the Netherlands, (London, Association of Technical Institutions, June, 1961).

Keele, 1961-62 and Keele, 1958, Prospectus, (Keele, University of North Staffordshire).

Linstead, 1961.
The complete scientist, an enquiry into the problem of achieving breadth in the education at school and university of scientists, engineers, and other technologists; report of the Leverhulme Study Group to the British Association for the Advancement of Science, 1961. (Chairman, Sir Patrick Linstead).

Livingstone, 1944.
LIVINGSTONE, Sir Richard, Plato and modern education, (New York, The Macmillan Company, 1944).

MacMillan, 1962.
MacMILLAN, R.G., University admissions in South Africa, (Pietermaritzburg, University of Natal, 1962).

MacOwan, 1962.
MacOWAN, D.N., "The place of communication in liberal studies" in Liberal education, (London, the Association for Liberal Education, no. 2, July, 1962).

Malherbe, 1963.
MALHERBE, E.G., Increased numbers present a challenge to the universities, (Durban, University of Natal, 1963).

Maud, 1960.
MAUD, Sir John, Expanding horizons in a contracting world: the challenge to education, (Durban, University of Natal, 1960).

Mayhew, 1960a. (For Mayhew, 1960b, see below)
MAYHEW, Lewis B., ed., McGRATH, Earl J., gen. ed., Social science in general education, (Dubuque, Iowa, Wm. C. Brown Company, 1960).

McConnell, 1962.
McCONNELL, T.R., A general pattern for American public higher education, (New York, McGraw-Hill Book Company, Inc., 1962).

McGill, 1962-63.
Faculty of Arts and Science; Faculty of Engineering, including the School of Architecture; School of Commerce; (Montreal, McGill University, 1962-63).

McGrath, 1961.
McGRATH, Earl J., and RUSSELL, Charles H., Are school teachers illiberally educated? (New York, Bureau of Publications, Teachers College, Columbia University, 1961).

McGRATH, 1959a.
McGRATH, Earl J., Liberal education in the professions, (New York, Bureau of Publications, Teachers College, Columbia University, 1959).

McGrath, 1959b.
McGRATH, Earl J., The graduate school and the decline of liberal education, (New York, Bureau of Publications, Teachers College, Columbia University, 1959).

McGrath, 1958.
McGRATH, Earl J. and RUSSELL, Charles H., Are liberal arts colleges becoming professional schools? (New York, Bureau of Publications, Teachers College, Columbia University, 1958).

McGrath, 1949.
McGRATH, Earl J., The humanities in general education, (Dubuque, Iowa, Wm. C. Brown Company, 1949).

McGrath, 1948.
McGRATH, Earl J., Social science in general education, (Dubuque, Iowa, Wm. C. Brown Company, 1948).

Mayhew, 1960b.
MAYHEW, Lewis B., General education: an account and appraisal, (New York, Harper and Brothers, 1960).

Medsker, 1960.
MEDSKER, Leland L., The Junior College: progress and prospect, (New York, McGraw-Hill Book Company, Inc., 1960).

Melbourne, 1962.
Faculty of Engineering Handbook, 1962, (University of Melbourne).

Michigan, 1962-63.
Michigan State University Catalog, undergraduate and graduate programs, (East Lansing, vol. 56, no. 12, May, 1962).

Mill, 1867.
MILL, John Stuart, Rectorial addresses delivered at the University of St. Andrews (London, Adam and Charles Black, 1894).

Minnesota, G.C., 1961-1963.
The General College, (University of Minnesota, vol. LXIV, no. 13, 1961).

Minnesota, CSLA, 1959-61.
College of Science, Literature, and the Arts, (University of Minnesota, vol. LXII, no. 13, 1959).

M.I.T., 1962-63.
The Massachusetts Institute of Technology Bulletin 1962- 1963, the general catalogue issue, (vol. 97, no. 5, July, 1962).

Moberly, 1949.
MOBERLY, Sir Walter, The crisis in the university, (London, SCM Press Ltd., 1949).

Monteith, 1962/1963.
Monteith College, 1962/1963, (Detroit, Wayne State University, vol. 40, no. 5).

Monteith, 1959.
Monteith College, (Detroit, Wayne State University, 1959).

Moorhouse, 1961.
MOORHOUSE, C.E., Science review; studies in the other culture and Ideas are dangerous, but .... (University of Melbourne).

Morse, 1960.
MORSE, Horace T. and DRESSEL, Paul L., eds., McGRATH, Earl J., gen. ed., General education for personal maturity, (Dubuque, Iowa, Wm. C. Brown Company, 1960).

M.S.U., 1962-63.
Michigan State University catalog, 1962-63, (East Lansing, Michigan State University publication, vol. 56, no. 12, May, 1962).

Natal, 1963.
Calendar, 1963, (Durban, University of Natal, 1963).

Neudling, 1960.
NEUDLING, Chester L. and BLESSING, James H., Graduate general humanities programs, (Washington D.C., U.S. Department of Health, Education, and Welfare, OE-56001, 1960).

Newcomer, 1960.
NEWCOMER, James, BUNNELL, Kevin P., McGRATH, Earl J., Liberal education and pharmacy, (New York, Bureau of Publications, Teachers College, Columbia University, 1960).

Newman, 1852.
NEWMAN, John Henry, The idea of a university, (Cambridge University Press, 1955).

New South Wales, 1963.
Calendar, 1963, (Kensington, N.S.W., Australia, The University of New South Wales, 1963).

Norton-Taylor, 1954.
NORTON-TAYLOR, Duncan, "The business schools: pass or flunk?" in Fortune, (New York, June, 1954).

Nowell-Smith, 1961.
NOWELL-SMITH, P.H., "Education in a university" in The Journal of General Education, (University Park, The Pennsylvania University Press, vol. XIII, no. 2, July, 1961).

Oberlin, 1957.
Liberal arts and medical education, report of a committee of the faculty of the College of Arts and Science of Oberlin College, (Oberlin, 1957).

Odiorne, 1955.
ODIORNE, George S., "The trouble with engineers", in Harper's magazine, January, 1955.

Ortega, 1930.
ORTEGA Y GASSET, José, Mission of the university, (London, Kegan Paul, Trench, Trubner & Co. Ltd., 1946).

Ortega, 1929.
ORTEGA Y GASSET, José, The revolt of the masses, (London, George Allen and Unwin, Ltd., 1951).

Oxford, Cambridge, 1960.
Entrance to Oxford and Cambridge, reports of committees appointed by the two universities, (Oxford University Press or Cambridge University Press, 1960).

Oxford, 1960.
Handbook to the University of Oxford, (London, Oxford University Press, 1960).

Palfrey, 1959.
PALFREY, John Gorham, The College at Columbia University, extracts from the report of the Dean for 1959, (New York, Columbia University, Hamilton Hall).

Peterson, 1960.
PETERSON, A.D.C., Arts and science sides in the sixth form, a report to the Gulbenkian Foundation, (Oxford University Department of Education, 1960).

Pierson, 1960.
PIERSON, Frank C., The education of American business men, a summary by FINBERG, Barbara D, (Carnegie Corporation of New York, 1960).

Plant, 1953.
PLANT, Sir Arnold, The Times, (London, 4th September, 1953).

Pooley, 1962.
POOLEY, Robert C., "A platform for the sixties: language arts in general education", in The Journal of General Education, (University Park, The Pennsylvania State University Press, 1962, October, vol. XIV, no. 3).

Pope, 1959.
POPE, Loren B., "A new kind of university", in Chicago Sun-Times, (1959, September 20, section two).

Potchefstroom, 1963.
Jaarboek 1963, Potchefstroom University for Higher Christian Education, (Potchefstroom, 1963).

President's Commission, 1947.
Higher education for American democracy, (New York, Harper and Brothers, 1947).

Pretoria, 1963-1964.
Jaarboek 1963-1964, (Pretoria, University of Pretoria, 1963).

Princeton, 1960-1961.
The undergraduate announcement, 1960-1961, (Princeton, University Press, 1960).

Radcliffe, 1961.
Advanced standing, RADCLIFFE, Shirley A., and HATCH, Winslow R., (Washington, U.S. Department of Health, Education, and Welfare, OE-54104, 1961).

Rhodes, 1963.
Calendar 1963, (Grahamstown, Rhodes University, 1963).

Rice, 1962.
RICE, James G., "General education: present condition," in The Journal of General Education, July, 1962, vol. XIV, no. 2.

Rork, 1962.
RORK, John B., and D'AMICA, Louis A., "How well are colleges and universities equipped to provide residential accommodations?" in The Educational Record, (Washington, D.C., American Council on Education, 1962, January).

Rudy, 1960.
RUDY, Willis, The evolving liberal arts curriculum -- a historical review of basic themes, (New York, Bureau of Publications, Teachers College, Columbia University, 1960).

Russell, 1959.
RUSSELL, Charles H., Liberal education and nursing, New York, Bureau of Publication, Teachers College, Columbia University, 1959).

Sampson, 1962.
SAMPSON, Anthony, Anatomy of Britain, (London, Hodder and Stoughton, 1962).

Sanders, 1955.
SANDERS, Jennings B., General and liberal educational content of professional curricula: architecture, (Washington, D.C., U.S. Department of Health, Education, and Welfare, 1955).

Sanders, 1954.
SANDERS, Jennings B., General and liberal educational content of professional curricula, a: forestry, b: engineering, c: pharmacy, (Washington, D.C., U.S. Department of Health, Education, and Welfare, 1954).

Sarah Lawrence, 1960-61.
Sarah Lawrence College catalogue, (Bronxville, August, 1960).

Scotland, 1959.
Notes on the secondary curriculum in relation to the Scottish Leaving Certificate, (Edinburgh, Scottish Education Department, 1959, January, DE43807/1).

Severinghaus, 1953.
SEVERINGHAUS, Aura E., CARMAN, Harry J., and CADBURY, William E., Jr., Preparation for medical education in the liberal arts college, the report of the Sub-Committee on preprofessional education of the Survey of medical education, (New York, McGraw-Hill Book Company, Inc., 1953).

Sheffield, 1960.
SHEFFIELD, Edward F., Admission requirements of Canadian universities, 1959-60, (Ottawa, Canadian Universities Foundation).

Shoemaker, 1960.
SHOEMAKER, Francis and FORSDALE, Louis, eds., McGRATH, Earl J., gen. ed., Communication in general education, College composition and communication, (Dubuque, Iowa, Wm. C. Brown Company, 1960).

Simpson, 1961.
SIMPSON, Alan, Dean of the College of the University of Chicago, Remarks on general education at Chicago, (unpublished draft dated 24th August, 1961).

Snow, 1959.
SNOW, C.P., The two cultures and the scientific revolution, (Cambridge University Press, 1959).

South Africa, 1963.
Calendar 1963, (Pretoria, University of South Africa).

Springhall, 1960.
SPRINGHALL, H.D., The sciences at Keele 1950-1961, (University College of North Staffordshire, unpublished memorandum, November, 1960).

SSCE, 1962.
Sixth form studies and university entrance requirements, sixth report of the Secondary School Examinations Council, (London, Her Majesty's Stationery Office, 1962).

SSCE, 1960.
The General Certificate of Education and sixth form studies, third report of the Secondary School Examinations Council, (London, Her Majesty's Stationery Office, 1960).

Stellenbosch, 1963.
Jaarboek 1963, (University of Stellenbosch).

St. John's, 1960-1962.
Bulletin of St. John's College in Annapolis, catalogue 1960-1962, (vol. XII, no. 2, April, 1960).

Stratton, 1960.
STRATTON, Julius A., The President's report, 1960, (Cambridge, Massachusetts Institute of Technology).

Sussex, 1961-62a.
The University of Sussex prospectus for 1961-1962, (Brighton, England).

Sussex, 1961-62b.
Science in the University of Sussex, 1961-1962, (Brighton, England).

Taylor, 1952.
TAYLOR, Harold, "The philosophical foundations of general education" in General Education, part I of the fifty-first year book of the National Society for the Study of Education, (University of Chicago Press, 1952).

Thomas, 1962.
THOMAS, Russell, The search for a common learning: general education, 1800-1960, (New York, McGraw-Hill Book Company, Inc., 1962).

Thomas, 1956.
THOMAS, Russell, "Will the liberal arts colleges return to liberal education?" in The Journal of General Education, vol. IX, no. 3, April, 1956).

Thomson, 1959.
THOMSON, Watson, Report of a tour of investigation into the role of the humanities in British training of technologists: summer 1959, (Vancouver, University of British Columbia, unpublished memorandum, 1959).

Thomson, 1957.
THOMSON, Watson, Report of a tour of investigation of programs of humanistic-social studies in engineering schools in the United States and Canada, May-June, 1957, (Vancouver, University of British Columbia, unpublished memorandum, 1959).

Topping, 1961.
TOPPING J., "Liberal studies reviewed" in Technology, vol. 5, no. 4, (London, 1961, April).

Toronto, 1962-63.
Calendar, Faculty of Arts and Science, 1962-1963, (University of Toronto).

Tucker, 1959.
TUCKER, D.G., "Broader education in a technological department", in Universities Quarterly, (vol. 13, no. 2, February, 1959).

UGC, 1959.
University Grants Committee, University development 1952-1957, (London, Her Majesty's Stationery Office, 1959).

UGC, 1957.
University Grants Committee, Halls of residence: report of a sub-committee, (London, Her Majesty's Stationery Office, 1957).

van Zyl, 1962.
VAN ZYL, A.J., Some observations and thoughts on general and adult education in the United States as well as on the respective functions of colleges and universities, (Pretoria Technical College, 1962).

Venables, 1959a.
VENABLES, Sir Peter, Sandwich courses for training technologists and technicians, (London, Max Parrish, 1959).

Venables, 1959b.
VENABLES, Sir Peter, British technical education, (London, Longmans, Green and Co., 1959).

Venables, 1955.
VENABLES, Sir Peter, Technical education, its aims, organisation, and future development, (London, G. Bell and sons, Ltd., 1955).

Venables, 1951.
VENABLES, Sir Peter, "Technical education in the United States and Great Britain: some comparisons," in The advancement of science, vol. 8, no. 31, December, 1951.

Wager, 1962.
WAGER, Willis J., and McGRATH, Earl J., Liberal education and music, (New York, Bureau of Publications, Teachers College, Columbia University).

Warren, 1963.
WARREN, Hugh A., Technical education in the U.S.A., (London, City and Guilds of London Institute, 1963).

Wayne, 1962/63.
College of Liberal Arts, (Detroit, Wayne State University, vol. 40, no. 3)

Whitehead, 1932.
WHITEHEAD, A.N., The aims of education and other essays, (London, Williams and Norgate Ltd., 1932).

Williams, Sir George, 1960-61.
Announcement of the Faculties of Arts, Science, and Commerce of the Sir George Williams University of the Young Men's Christian Association of Montreal, (Montreal, 1960-61).

Williams, 1962.
WILLIAMS, Aston R., Memorandum to the Joint Matriculation Board, (Durban, Natal Technical College, 1962).

Williams, 1961.
WILLIAMS, Aston R., The four problem years, (Durban, Natal Technical College, 1961).

Witwatersrand, 1963.
Calendar 1963, (Johannesburg, University of the Witwatersrand, 1963).

Witwatersrand, 1961.
Calendar 1961, (Johannesburg, University of the Witwatersrand, 1961).

Witwatersrand, 1948.
Proposed basic-training year, (Johannesburg, University of the Witwatersrand, unpublished report of sub-committee, Misc. S/410C/48, 1948).

Wood report, 1955.
Liberal Education in a technical age, Committee of the National Institute of Adult Education, (Chairman, Sir Robert Wood), (London, Max Parrish and Co., Ltd., 1955).

Wyld, 1936.
WYLD, H.C., The universal dictionary of the English language, (Capetown, Maskew Miller, Ltd., 1936).

Yale, 1962, September.
An introduction to Yale, (New Haven, Yale University Press, series 58, no. 18, September 15, 1962).

Yale, 1962, April.
Undergraduate courses of study, fall and spring terms, 1962-1963, (New Haven, Yale University Press, series 58, no. 7, April 1, 1962).

Yale, 1960-1961.
The Yale Programs in Directed Studies in the humanities and in science, (New Haven, Yale University Press, 1960-1961).

Yale, 1960, May.
Planning a course of study and other information for prospective members of the freshman class for the academic year 1960-1961, (New Haven, Yale University Press, series 56, no. 9, May 1, 1960).

York, England, 1963-64.
University of York Prospectus 1963-64, (York, England).

York, Canada, 1962-63.
York University Calendar for the third academic year 1962-63, (Toronto, Canada).

York, Canada, 1960-61.
York University Calendar for the first academic year 1960-61, (Toronto, Canada).

Lists of visits in the United States under a Carnegie Corporation Travel Grant in 1960 and a State Department Leader Program Award in 1955, and of visits privately made in Canada and England.

UNITED STATES OF AMERICA.

	1960	1955
American Council on Education, Washington, D.C.	1960	1955
Amherst College, Amherst, Massachusetts	1960	
Antioch College, Yellow Springs, Ohio	1960	
Atlanta University, Georgia		1955
Bell Telephone Company of Pennsylvania, Philadelphia		1955
Boston University College of Industrial Technology		1955
Brooklyn Technical High School, New York		1955
California Institute of Technology, Pasadena		1955
Cambridge Centre for Adult Education, Massachusetts	1960	1955
Carnegie Corporation of New York	1960	1955
Carnegie Institute of Technology, Pittsburgh	1960	
Central Commercial High School, New York		1955
Central High School of Needle Trades, New York		1955
City College of Los Angeles		1955
City College of San Francisco		1955
Columbia University, Columbia College, New York	1960	1955
Columbia University, Teachers College, New York	1960	1955
Cooper Union, New York		1955
Drexel Institute of Technology, Philadelphia		1955
Emory University, Atlanta, Georgia		1955
Ford Foundation, New York	1960	1955
Franklin Technical Institute, Boston	1960	1955
Georgia Institute of Technology, Atlanta		1955
Harvard University, Cambridge, Massachusetts	1960	1955
Illinois Institute of Technology, Chicago		1955
Lawrence Institute of Technology, Detroit		1955
Los Angeles Trade-Technical Junior College		1955
Lowell Technological Institute, Massachusetts		1955
Loyola University, New Orleans		1955
Massachusetts Institute of Technology	1960	1955
Michigan State University, East Lansing	1960	
Michigan State University, Oakland	1960	
Moore Institute of Art, Philadelphia		1955
National Education Association, Washington, D.C.	1960	1955
New York City College of Applied Arts and Sciences	1960	1955
New York University		1955
North Western University, Evanston, Illinois		1955
Office of Health, Education, and Welfare, Washington, D.C.	1960	1955
Pratt Institute, New York		1955

Princeton University, Princeton, New Jersey		1955
Rhode Island School of Design, Providence, R.I.		1955
Stanford University, California		1955
State College of Los Angeles		1955
State College of San Francisco		1955
Technical-Vocational High School, Hammond, Indiana		1955
Tulane University, New Orleans		1955
University of California, Berkeley		1955
University of Chicago, Illinois	1960	1955
University of Denver, Colorado		1955
University of Minnesota, Minneapolis	1960	
University of Pennsylvania, Philadelphia		1955
University of South California, Los Angeles		1955
Yale University, New Haven, Connecticut	1960	
Wayne State University, Detroit	1960	1955
Wayne State University, Monteith College	1960	
Western College for Women, Oxford, Ohio	1960	
Wheaton Senior and Junior High Schools, Wheaton, Maryland		1955
CANADA.		
Canadian Education Association, Toronto	1960	1955
Canadian Universities Foundation, Ottawa	1960	
Carleton University, Ottawa	1960	
Central Technical School, Toronto		1955
Département de l'instruction publique, Quebec	1960	
Laval University, Quebec	1960	
McGill University, Montreal		1955
Montreal Technical School, Montreal		1955
Ontario College of Education, Toronto		1955
Ontario College of Pharmacy, Toronto		1955
Ryerson Institute of Technology, Toronto		1955
Sir George Williams College, (now University), Montreal		1955
Toronto University, Ontario	1960	1955
York University, Toronto	1960	
ENGLAND.		
Cambridge University	1960	
College of Advanced Technology, Birmingham	1960	
Conference of Association of Technical Institutions		1955
Imperial College of Science and Technology, London	1960	
Northampton College of Advanced Technology, London	1960	
Oxford University	1960	
Royal Technical College, Salford		1955
The Polytechnic, Regent Street, London		1955
University College of North Staffordshire,		