GENERAL EDUCATION

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Headmasters of Public and Grammar Schools, university professors of Classics, Philosophy and Literature, Chief Education Officers in England all agree nowadays that 'specialization is a bad thing' especially if it implies the careful study of scientific subjects. They unite in condemning the pernicious effects of the examinations to which they submit the pupils in their schools because these examinations encourage rote-learning and specialization and because they measure knowledge rather than qualities of personality. All regret and deplore the outlook of the 'narrow, uneducated' scientist or engineer. Needless to say most, though not all, those who argue in this vein have themselves been trained in the Arts. It is evident too, that the views they express are based upon personal feeling and prejudice rather than objective enquiry. Nevertheless, the whole argument is valuable because it reveals much about the British attitude to education and because it is leading to some interesting experiments in the organization of curricula.

Traditionally, the English—unlike the Scots—have not cared much about *what* people learnt at school or university. The aim was the development of character. The hope was that the young would grow into brave, helpful, truth-telling Englishmen; Christians and gentlemen. The educational instruments used were Classical Literature and Religion. On the whole, the view was taken that there should be one principal branch of study (i. e.

Latin and Greek) to which the largest share of time and attention should be given. During the last hundred years, however, as a result of social and economic changes many new subjects have gradually intruded themselves, not only at university level but also in the secondary school: Modern Languages, Natural Sciences, Geography, for example. This might have led, little by little, to a situation like that which exists say in Germany or Holland—an absolutely overcrowded time-table and young people studying as many as 12 or even 15 different subjects up to the age of 18 or 19. But in England the belief that there should be "some one principal branch of study" persisted and is still (in theory) often accepted. Many of not most educators consider that young people really should come to grips with not more than one or two subjects and learn to master them. So what was done was to move towards a limited form of specialization—schools began to be organised into 'sides'. At the age of 13 or 14, the young boy or girl had to decide whether to go over to the Classical or the Modern or the Science or the Engineering 'side'. This tendency towards early specialization was then intensified by the structure of the examination system—the Advanced Level of the General Certificate of Education and the University Scholarship Examination. It was then carried still further by the evolution of our universities. There, perhaps the most potent factors were the rapid growth of the provincial universities and the appointment of large numbers of professors in all the new specialisms which have arisen during the last hundred years. Traditionally, professors, as Heads of Departments, enjoy immense autonomy. They have themselves been appointed because of their very special skill in advancing one particular discipline—which means concentration in an ever contracting area. To the shoemaker, there is nothing like leather; to the professor there is not much outside his own

speciality. When it comes to choosing the pupils to whom scholarships are awarded, it is natural that the professors should consider, first and foremost, ability in their own subjects.

Needless to say, the evident clash between the old ideals of character training for any acquisition of knowledge produces disquiet and discomfort: the discussion on General Education a sympton of it. As a rule, it is chiefly examinations that are blamed and attacked. Nevertheless these new and mighty idols are worshipped—usually with a feeling of shame and guilt. And how powerful they are! One can find adolescents of 15 or 16 in both Public and Grammar Schools who spend perhaps two thirds or three quarters of their time, say, on Mathematics and who think that every hour spent away from it is a mere waste—which it is, if success is measured by the gaining of scholarship. At the university, they continue even more intensively along the same lines.

This fragmentation of knowledge, this intensive specialization, is clearly dangerous to the cohesion of society. Under such conditions, how is it possible to maintain a common culture, a common universe of discourse where human beings can meet for mutual refreshment and enrichment? Yet, it is by no means easy to find a solution in line with the English tradition and yet relevant to the social and technological needs of the day. The problem itself is usually considered, not quite correctly to my mind, merely as one of combating 'over-specialization' by restoring a balance between scientific and literary subjects—evidently mainly an attempt to treat symptoms rather than causes, a prescription of additives to a diet fundamentally badly balanced. Some believe that a solution could be found by altering examination requirements—for instance, by compelling all Sixth Formers, taking Advanced Level G. C. E. or University Scholarship Examinations, to offer more than three or four subjects and insisting that these be chosen from

both the Arts (i. e. Literature and Language) and the Sciences. For example, all scientists could be made to study the History and Philosophy of their subjects, these being interpreted from a human angle. Specialists in languages could be made to do a short course in General Science which would stress the social effects and the industrial applications of modern technology. Both Sir (now Lord) Eric James, Highmaster of Manchester Grammar School and Mr. Peterson, Director of the Oxford University Department of Education have written and spoken most interestingly about such possibilities. Mr. Peterson has suggested that University Scholarships be awarded at the end of the first year of the undergraduate's university career rather than before entry. If this were done it would suggest to some Sixth Formers that it does not pay to cram intensively for one exam. In Mr. Peterson's words "the boy whose name appeared on the Honours Board would be the boy who had widened and deepened his mind, who had learnt to work for himself, and who had proved himself a year after school." Professor R. A. C. Oliver has suggested that the G. C. E. examination syllabus ought to be cut by a third and that the examination should somehow be made into a test of think ing ability rather than of memory. To such arguments, those who support the notion of specialization tend to reply that clever boys and girls of 16 or 17 thoroughly enjoy studying two or three subjects 'in depth' and that the intellectual discipline and hard work involved is good for them. The truth, of course, is that clever adolescents get pleasure from mastering new knowledge, whatever it may be. The French or German student dealing with his dozen or more subjects does not seem less happy than the English Sixth Former, nor does he mature intellectually more slowly.

Somewhat similar trends are noticeable at the university level: here many are envious of Scotland, where the regulations

for the first degree (corresponding to the B. A. or B. Sc.) encourage students to study both the Arts and the Sciences and even to take courses in Philosophy, widest and least specialized—so it is often mistakenly thought—of all intellectual activities.

Two interesting experiments may be quoted as examples of what is being attempted in many of our universities. Some years ago, at the Imperial College of Science, the very centre and focus of scientific specialization, the summit of our Technological Education, Sir Roderick Hill, then Principal, was desirous of widening the interests of engineering students. He therefore arranged an informal series of lectures on music. By 1952 this voluntary course had blossomed out and broadened. Twice a week mid-day talks by well-known authorities were being offered. They fell into three categories: current affairs; literary and visual arts; music. In addition, every Thursday there was a lunch-hour concert. Numbers attending vary from 10 to 600—the record being reached when the Chancellor of the Exchequer spoke.

What are called 'touch-stone' weekends, are also arranged at pleasant country house, about six times a year. Some 30 to 40 students spend a few days arguing with one another and discussing cultural or literary topics with a guest lecturer.

More thorough going than this sort of effort—which is matched *convariazione* in every one of our universities—is the reorganization of studies at the University College of North Staffordshire. This is a new institution which began work round about 1950, under the general guidance of Lord Lindsay of Birker. It is a purely residential institution, housed in a magnificent park from which one can see hills, lakes and grass land. The course for a first degree extends over four years—the first of which is called the 'Foundation Year'. Its purpose is to review, discuss and illustrate the background, heritage, achievements, and prob-

lems of Western civilization. The course begins by enhancing the students' sense of wonder by the contemplation of the heavens as seen through the eyes of modern astronomy and physics. Not only the Arts students, but the scientist also sees in a new light the faith and methods of the scientist after an outline of the progress from Kepler, Galileo and Newton to the exciting speculations of modern cosmology. The geologist follows with an account of the history of the earth during the three billion years or so before the emergence of man, and the geographer describes and discusses climate and other environmental factors. The biologist introduces living things and discusses theories of the origin and evolution of man. By the end of the first thirty or forty lectures, students have the background needed to appreciate the achievements of early civilizations as presented by philosophers and historians.

The next cycle of lectures deals with the problems of Western society in an industrial age as seen by historians, geographers, economists and political scientists. The third group is concerned with the creative achievements of mankind—the arts, the sciences, the technologies. There is a section of the study of man and his beliefs—this being handled by philosophers, psychologists, sociologists, biologists and theologians.

This, then, in brief, is the basic content of the Foundation Year: but it is enriched by seminars, discussions, individual tutorials and the writing of essays. Examinations are held at the end of the session and, together, with tutors' reports, these determine whether a student is fitted to proceed to the honours degree course which follow. It should be mentioned that these more advanced courses are less narrow than those usually followed in older universities: for the most part, they are expected to deal with four subjects, of which at least one should be scientific and

at least one non-scientific.

Such drastic re-arrangement of degree requirements has not been attempted anywhere else: the methods of administration of our universities and the autonomy of our faculties make real reform very difficult. What has been done is to provide additional voluntary courses and lectures, either during the mid-day break—as in the Imperial College—or in the evening. These often deal with the History, Methods and Philosophy of Science: the notion being that Arts students would be more responsive to the human than to the experimental or mathematical aspects of natural science while science students would appreciate the opportunity of widening their knowledge of fact and abstract law. What is noteworthy about all these attempts—it should be emphasised again that they are being made everywhere—is the general agreement that the present situation is unsatisfactory. Almost everyone deplores the fact—if it is a fact—that many science graduates display little love for the plastic or visual arts, nor for music and very little interest in human, social or political problems. The fear is that they will therefore gravitate towards their laboratories and workshops, closing their doors against the world. The result, then, would benot only an impoverishment of their own individual lives but, what would perhaps be worse, the loss to society of the unique contributions that might be made by men and women engaged in the most vital and progressive sector of modern life: science and research. There is equal agreement on the thesis that Arts graduates should not be allowed to move towards positions of managerial responsibility and political influence unless they have acquired at least some smattering of basic scientific principles nor unless they realize what is meant by the scientific method and the scientific attitude—even though they may neither accept the method as universally valid nor share the atti-

tude.

All this reminds one, of course, of the discussions which have gone on in the United States for at least thirty years. Over there, too, one finds talk of teaching more about modern science to all university students as well as about sensitizing the young to the contribution which the Arts can make to human life. Whole libraries of weighty and thoughtful books have been produced, usually by Committees whose activities have been generously supported by the major Foundations. But the resemblances with Britian are, in fact, superficial. American education at the secondary and college levels has never been so narrowly specialized as that provided in the corresponding English institutions. Pupils have tended always to take a far greater number of subjects—if indeed they studied 'subjects' at all. During the last fifty years, moreover, there has been a distinct movement, especially in the High School, towards 'areas of study' which have been devised to include some general science as well as some social studies. Furthermore, the American attitude can be distinguished from the English by its tendency to evaluate the results of instruction by the competence acquired in doing things rather than by either knowledge of fact or development of character. A typical American definition of General Education, for instance, states that it is "to meet the needs of individuals in the basic aspects of living in such a way as to promote the fullest possible realization of personal potentialities and the most effective participation in a democratic society".

There are thus important distinctions between the American and the English approach. Both agree that the sciences as well as the humanities are essential to a well-balanced educational diet, both agree on the importance of awakening interest among young people in the historical and cultural background of social and po-

litical problems. But the English are more insistent on the need for greater breadth and closer contact with concrete problems. The Americans talk more about the virtues of the traditional disciplines and of the liberal ideals—and they are, in fact, disturbed because so many of their young people know too little about science and mathematics when they enter the university—which would imply more specialization. These differences are, however, not fundamental: both sides of the Atlantic cleave in their different ways to the Western tradition of a balanced, harmonious, liberal education intended to produce not only good citizens but free men, able to take into their own hands the shaping of their own destiny. As a result there is a fruitful dialogue between the educators of all English-speaking nations: the books are read, the arguments considered. Typical of this intellectual co-operation is the cordial relation established between North Staffordshire and two experimental colleges in the U. S. A.—Swarthmore and Reed College—a relation which now includes the exchange of a student a year with each.

All attempts to help those who have specialized norrowly during their professional and technical education to look over and beyond the rims of their ruts are excellent and must receive encouragement. Nevertheless, one may well doubt whether the problem of 'General Education' is merely one of achieving a proper balance—whatever this may mean—between the Arts and the Sciences. The trouble lies deep and will not be removed merely by teaching a little history of science to those who specialize in English literature; nor by making physicists or chemists attend lectures on philosophy or literature; nor by getting them all to go to concerts and art shows to be told about Brecht, Henry Moore and Le Corbusier.

What is needed is a thorough and deep re-thinking of the

issues that face us, a drastic and radical re-interpretation of the central meaning of the tradition of liberal and general education. In the past this was adapted to the needs of a society sharply stratified into social classes, each with its own rights and privileges. Higher education had to develop insights and qualities of leadership in a small élite, which wielded power and carried on culture. Science, as we understand the term, nowadays, was not an essential element of this culture, nor did it play an important part in the production or distribution of material goods.

Our present task, then, must be to attempt to re-orientate the courses provided in school and college so that all our pupils may develop the social and cultural skills they need to deal competently, creatively and humanely with the problems which they share with their fellows. These skills can now be developed only within a curricula framework which includes the social and natural sciences as well as the visual, plastic and literary arts. It is not yet clear how this can best be done nor do we know what methods of teaching will prove most successful—we may perhaps need to make much fuller use of powerful new media of communication like television or the cinema. One can only move on in the faith that solutions will be found if we think audaciously and experiment boldly.

(Lecturer at ICU in September, 1959)