

WHAT IS A MAN



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SYMPOSIUM

FROM MAKERERE

WHAT IS A MAN?

The original title of this series of lectures was 'What is Man?' References to this in the text have been left unchanged although the title of the book has been altered.

WHAT IS A MAN?

Edited by ERIC LUCAS

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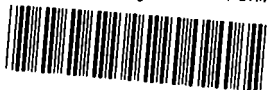
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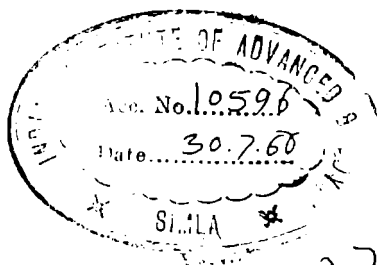
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Except in the case of Professor Howells the writers were all members of the Staff of Makerere College, University College of East Africa. The positions are those held at the time of the delivery of the lectures.

FOREWORD

THE fourteen talks which make up the contents of this book were first delivered in the Institute of Education at Makerere College, the University College of East Africa, in 1959. They are here published not only or mainly in response to the general demand from the students who heard them, but because it is hoped that they may have some value to a much wider audience.

East African secondary schools are just embarking on sixth form work. Are they merely to imitate the English pattern and prepare their pupils to pass three subjects at advanced level in the General Certificate of Education or the Higher School Certificate? It would be a tragedy if we had to reproduce all our mistakes wherever we go, and most critics of the English educational system, from within as well as from without, have agreed that the sixth form curriculum in most schools, under various economic and educational pressures, has become much too specialized and narrow, until, as the late Lord Lindsay once remarked, when the products meet in the university, the only phrase they all can understand is 'Have a glass of beer'. Although this may be an admirable basis for social contact, it does not get the university education much further if the understanding stops there.

The most valuable educational treatise published in England for many years, the Crowther Report, again draws attention to this weakness in English higher education, and makes constructive suggestions for remedying it. But whether they will be adopted or not, in territories like East Africa it is surely not beyond the powers of thinking of all those concerned in education to devise something better than the English pattern. New university institutions are springing up. If, as some maintain, it is the English universities with their limited and highly selective entry that have forced upon the schools this degree of premature specialization (which the writer does not entirely believe) then the University Colleges serving the

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emergent nations must strive to be more liberal in outlook. If on the other hand English schools, and parents, have attached too much prestige to the achievement of high marks in too few subjects, if specialist teachers have been allowed to press their claims on pupils' time and intellectual efforts too far and too exclusively, surely a secondary school system that is just feeling its way forward to sixth form work can base it more broadly. Clearly, the two responsible authorities must work together, for although parents are concerned with a good education for their children, they rightly demand that in the sixth form it shall be such as to enable those best fitted for degree, or advanced diploma work to enter the University, Technical College, or other course of advanced training. In the smaller educational systems of developing countries, this should be much easier of achievement than in the vast long-established systems where 'interests' have become deeply entrenched, always provided the good will and the desire to create new wine-skins for new wine are there.

This modest contribution to the books available may, if it is used properly, help the sixth form master. It could provide the basis for one or two terms' work for all sixth form pupils, encouraging them through discussion and further thinking to understand the contributions various disciplines can make to one of the most fundamental questions which all educated men must try to answer. It should not only widen the sympathy and understanding of the non-specialist, but, equally important, help the specialist to see where his chosen field of study comes in; what in fact his subject is bringing to the whole field of human culture and in what ways his own thinking is limited or enlarged by his subject matter. The sixth form master needs such help, for let us admit, whether we are school or university teachers or teacher-trainers, that there is no more exacting task in the whole educational system than the education of the sixth-former. Good biology or history or language specialists to prepare students for their 'A level' papers are comparatively common, although perhaps declining in numbers relative to the needs. But a teacher able to enthuse science specialists with a love for history, or to

make the Arts Sixth want to know more about the Evolution Theory or Atomic Energy is a rare bird indeed. The shortage of such people is the only valid argument against widening the sixth form curriculum the writer has ever heard.

The book may have other uses. An adult class with the help of an Extra-mural tutor might well gain some enjoyment and profit from its study. The course of lectures attracted a substantial number of men and women from outside the University when they were delivered, and it was largely through their attendance that the Uganda Broadcasting Service asked the contributors to repeat their lectures in shortened form from the Kampala Station in 1960.

It should also interest the general reader, not only because of the intrinsic interest of the subject-matter, but because it is the product of a number of teachers in an East African University College. Many of the contributors illustrated their talks with examples from the East African setting, indeed it would have been a most unhealthy sign if they had not done so. In the light of the growing interest in African affairs all over the world, some readers may like to know what is going on in East African higher education. Of course a better book on 'What is a Man?' would have come from Cambridge or Harvard, Manchester or McGill, if all their resources of scholarship had been devoted to the question, but with one exception, the distinguished contribution of Dr. Howells, Professor of Anthropology at Harvard, who happened to be visiting us at the time, we have relied on our own resources, and this at once imposes certain limitations. For example, we have no Department of Philosophy at Makerere, and therefore no professional philosopher was available. This is a serious deficiency in any university institution, and one which we should like to see remedied. But it must be remembered that like all universities we have to serve the community in which we find ourselves, and we rely for almost all our recurrent expenditure on the East African Governments, who inevitably examine proposals for new departments in terms of the obvious, and alas, all too frequently material benefits, that would accrue to the East African peoples. The book must be

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read in this context, and as a reminder the dust-cover has been contributed by a member of our School of Fine Art.

Makerere College became a University College in special relationship with the University of London in 1950. Until 1960 almost all students entered at the School Certificate level and took four years to graduate with the London General Degrees or five years for an Honours Degree. The first two years of these courses, ending with the Preliminary examination, will now be taken at school, and all degree courses will normally be of three years' duration. But the audience to which these lectures were addressed included a substantial proportion of what will soon be sixth-formers. For many years before 1958 the general education of students over and above their three Preliminary subjects had consisted of English and Social Studies. All students in the Faculty of Science and the School of Fine Art took the English course, intended originally to increase their facility in the use of the language, and all Preliminary students, whether Arts or Science, took the Social Studies course in order to enlarge their understanding of the political, economic, and social problems of East Africa. These courses undoubtedly helped the students of the 'forties and early 'fifties to remedy some of the deficiencies of their school education and home background. It was felt in 1958 that the changes in the student body as the College developed and its growing output of professional men took their places alongside expatriates, called for a review of the general education of students. A working party was therefore set up to study the problem and advise on what changes were necessary. The valuable studies of the subject at Harvard and Chicago and the practice and experience of the University College of North Staffordshire were drawn upon, and the needs of students in East Africa considered in relation to their home and school backgrounds. Fairly drastic proposals to replace the first term's work in Arts and Science with a general course common to all students were put forward. They were welcomed by the professional faculties of Medicine, Agriculture, Veterinary Science, and Education, accepted by the scientists and rejected vigorously by the Faculty of Arts. Now

this would be of little interest except to Makerere were it not for the widely held opinion that the same thing would have happened in most English universities. The problem of general education in the university is very largely a problem of the attitude of Arts faculties, and it is worth examining the reasons for it. It is based on two arguments so much out of line with twentieth century thinking that they may be fairly described as educational heresies. The first is that an Arts course in a university is in itself a general education. As one speaker put it, 'I don't know what you mean by a general education. That is what I am giving my degree students.' Some of the consequences of this point of view are examined in Sir Eric Ashby's important book, *Technology and the Academics*. It is becoming increasingly apparent to all but themselves that scientific illiterates, whether administrators, managers, politicians, clergy, or lawyers, are a menace to society in the latter half of the twentieth century. The second argument is that the job of a lecturer in an Arts faculty is to teach students taking degrees in his subject, and there it ends. It is no part of his duty to the University to 'waste his time' teaching it to specialists in other fields. Already too much of his energies which should be devoted to his research is dissipated in teaching and the preparation of his lectures. This total lack of missionary zeal is a tragic accompaniment of a dying faith, and it may well be that those who care for education must save Arts faculties from themselves. For they have a message, of great and increasing importance to the education of rising generations of students of the sciences and technology. Their unique contributions to this may well be infinitely more important to the future of humanity than the arid little fields of research which they regard as the holy of holies. This is, of course, impertinence. But let us remember that impertinence was one of the most effective weapons in the armoury of that great playwright, thought-provoker, and social reformer, George Bernard Shaw. He was sometimes wrong, of course, and there are honourable exceptions to all these generalizations—not least among the contributors to this book. But many university teachers will recognize their

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colleagues if not themselves in the arguments thus presented.

A third argument against a course of general education in an East African University College would not be nearly so general. It was that the students would resent it as a reflection on their home backgrounds and traditions, and react against it. Here it is significant to observe that the African colleague who served on the working party was a whole-hearted supporter of the need for such a course, and his enthusiasm would have carried us far beyond our proposals. The objection was raised by expatriates sincerely anxious not to risk offending susceptibilities and being misunderstood. But when we cease to follow our best convictions and dare not do what is right because it may be misrepresented, we have ceased to have any value as teachers. Fortunately, the same argument is not applied in the teaching of specialist subjects such as history, where it would be an obvious betrayal of professional integrity. How valid this argument was may be inferred from the fact that when this course of lectures, followed by questions and discussion, was organized on a voluntary basis in the students' spare time, about half the student body attended, audiences of over four hundred being maintained to the end.

This course of lectures on 'What is Man?' was organized in the first place for students in the Faculty of Education preparing to become teachers, when it was clear that the more ambitious scheme did not command general support. The first essential of a good teacher is that he should be educated and indeed that he should recognize that this process is never complete. Contributors were asked to answer the question from their various points of view in such a way as to reveal the mode of thought characteristic of their subject. They were told that the object was not to give a complete answer supported with an imposing array of facts and quotations from learned works, but rather to create sympathy for and some understanding of different points of view. This is of great importance to future teachers, and it is a sign of maturity in the profession when a specialist in one subject recognizes the value of what his colleagues are doing and co-operates with

them in educating the whole man. We can all say: 'I must have at least two extra periods a week for my subject if Smith and Jones, or Mukasa and Mwangi, are to have any chance of passing in the Certificate Examination.' How few of us say in a staff meeting: 'I do feel, Headmaster, that the contribution Mr. X is making to the education of Vb is so important that he should have the extra period he is asking for.' It sometimes happens in the best schools, but not nearly often enough. The seventy education students were therefore required to attend. Students in other faculties were invited, the only condition being that they should attend the course as a whole and not just the lectures that seemed relevant to their particular subjects. It was felt to be better to have a small regular audience who would gain a broad general view of the subject, rather than a larger and changing population of occasional visitors. Admission was therefore restricted to those who had the printed programme of lectures distributed after the first meeting. Experience showed how greatly we had underestimated the students' thirst for education, and two reprints of the admission cards proved necessary. This magnificent response from students of all faculties and the general public had minor disadvantages. Discussion following the lectures was limited to a number of questions from audience to lecturer, and almost always there were two or three times as many questioners left unsatisfied when time expired as were able to put their questions. Perhaps this did not matter very much, for the subject of the lecture provided topics for conversation and argument throughout the College during the week, and Lord Lindsay himself would probably have been quite satisfied by the extended intercommunication.

Twice during the course full-scale debates were organized instead of lectures, and a few members of the audience thus had their chance to speak. The first, half way through the series, was on the motion: 'That the only Proper Study of Mankind is Man.' At the end we debated the subject 'That Man is the Master of his Fate'. Unfortunately, it is not possible to reproduce these, though both proved interesting and lively. The broadcasts which followed the lectures were strictly

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limited to thirty minutes, and in order to keep this book within reasonable length it is the shortened versions which are here reproduced. The publishers have, however, left the contributors free to extend the abbreviated versions if they wished, so that few of the chapters are exactly in the form in which they were delivered.

The responses of our readers to the answers given will of course be as varied as those of the listeners, for as Professor Southall shows we are all of us, lecturers and students, writers and readers, much more creatures of our environment than we always suspect. Some will share Dr. Whitaker's regret that no one was persuaded to answer in terms of 'Seeker after Luxury', or 'Man without Morals', or 'Man the Godless', though we may well question his assumption that this would have brought the book more up-to-date. The fact is that there is a timelessness about the question posed by the psalmist, and one could invent a good party game matching an even greater variety of answers with a suitably chosen list of historical characters. If after reading this book we can only conclude with the familiar phrase of parliamentary reports: 'The debate continues', the authors will by no means feel dissatisfied.

1: The Educated Man?

WHAT is an educated man?

This seems a proper question to ask at the beginning of a series of addresses on 'What is Man?' that has been designed for educating.

It is a question to which the greatest philosophers from Plato to A. N. Whitehead have addressed themselves directly or indirectly, as they considered what are the aims of education. Yet it is one of those questions that is always new and exciting, for the answer changes as the human situation changes.

It has never been more important than it is today; for the changes in the world situation, and not least in our educational techniques, present us with a challenge to re-think our whole attitude to the purposes of education. Two world conflicts on a hitherto unparalleled scale represent much more than trials of armed strength or rival economic systems. They are symptoms of a clash of ideas, of a confusion of thought and values, an uncertainty about civilization itself. The lifetime of all of us has seen the extension of the frontiers of human knowledge at a pace unprecedented in human experience and, so far as we can tell, likely to continue at an ever-increasing rate. We all have views on education, for we have all been to school. Yet even in this conservative field of human endeavour, things are changing so fast that the opinions we express based on recollections of our own school-days are often as obsolete as if we had attended Plato's Academy. This was illustrated with startling clarity by the recent debate on compulsory Latin which took place in Convocation at the University of Oxford.

Difficult though it be, I must attempt to define an educated man. He is one who has pursued the study of some subject at sufficient depth to make it his own, who has some contact

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with and sympathy for the five main fields of human thought and endeavour, and who can give effect to at least some of his ideas. I think this definition will be found to have a very general application. For instance I would call the judge in an African Native Court an educated man if he has mastered the intricacies of traditional law, enjoys a concert on his wireless, cultivates his coffee estate efficiently and is prepared to try out new methods of cultivation and assess their value, discusses the political future of his country intelligently, and can bring to the tragedies of African family life a calm philosophy, giving him courage in his own affairs and making him a valued friend to others. Such a man, and he is to be found increasingly in developing societies, is self-educated in the best sense of the word. Indeed it is difficult to understand and impossible to justify a 'superior' attitude towards the self-educated when one reflects that all true education is the result of the efforts of the individual. He may never have been to a secondary school, but in my view such a man has a much stronger claim to the title than many of the products of our universities today. He exhibits two of the symptoms of being educated; he is happy, and a valuable and valued member of the community.

Let me first elaborate what I mean by saying that an educated man has studied some subject in depth; the specialist element in education.

There are some who decry all specialization in education, especially in schools. They would have pupils in the sixth forms, or even sometimes in the early years of the university, divide their time between five or six different subjects, and carry them all to approximately the same level. The educational systems of Scotland and Germany, to mention only two, and their examination requirements for selection, support this view. Yet it is unsound educationally, denies the pupils a very important freedom, and is outmoded by the recent development of human knowledge.

It is unsound educationally because the able boy or girl of seventeen and over—and we are now considering sixth-

formers and undergraduates—needs for his intellectual and spiritual development to think deeply about something. He needs to pursue the truth diligently in at least one field, to study all the views that have been held as carefully as possible, to collect all the evidence available to him, and then without bias or prejudice to form his own conclusions and defend them until he is convinced he is wrong. In the course of this study he will form the habit of reading, learn techniques of experimenting and their limitations, begin to value precise thinking and careful analysis. As Dr. Lockwood said, when addressing Makerere College in 1954:

Exact learning, which he should always pursue, makes searching demands upon his mind and character and does much to promote their growth.

To say this is not to commit ourselves to indefensible theories of mental training and transfer of such training. It is to recognize that education is only possible within some framework of discipline, and that the discipline of a subject is an important factor in educating students.

Perhaps almost as serious an objection to non-specialized higher education is that it denies the student's right to follow his interest. Enthusiasm for an academic subject or even for a hobby is a rare enough quality in our pupils; surely we should frame our educational systems so as to take advantage of it when it does appear. By the time they are sixteen, pupils in a good school will have been brought into contact with a sufficient range and variety of subjects to know where their main interest lies, and they will be encouraged and assisted to pursue it, not exclusively of course, but far enough to give them satisfaction and a sense of achievement. This is as true of music, ornithology, and photography, which may lie outside the school timetable, as of the academic subjects within it.

Thirdly the advanced general curriculum takes no account of the advancing frontiers of knowledge. If the seventeen-year-old, still more, if the undergraduate is forced to pursue four or five or even three subjects to the same level, he may in

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fact never even reach the frontiers in any one. This produces a staleness, a feeling that work is out-of-date and academic, and the student, robbed of the important intellectual adventure of looking out into the great unknown, is less interested in his studies and less use to his community.

Specialization has undoubtedly come to stay and to try to put the clock back educationally, by reviving a modern quadrivium, is doomed to failure and deservedly so.

But having said this, one must admit that there is very little danger from this quarter to the production of educated men. The failure of the universities to turn out educated men and women today does not in the least arise from their failure to teach specialist studies well. As Sir Richard Livingstone has said: 'the influence of the universities on the world is disappointingly limited; and this is due to their being too little concerned with ends, with human values, with a philosophy of life.'¹

The effect of their specialization on the schools has been serious, for it has produced a generation of teachers who are often good specialists but too rarely educated men. Except in the best schools this has led to a decline in the pastoral side of the schoolmaster's work, for how can he impart a philosophy or advise on a complex human situation if he is no more than a good geographer or biology specialist? When university teachers complain that their first year students are uneducated, they need to be reminded that the schools are staffed with their own graduates. To a considerable extent they are only reaping what they have sown, the products of excessive specialization.

The educated man must also be a man of wide sympathies intellectually. He must, at some time in the course of his education, have trodden for a space each of the great highways of human thought and culture. They are five in number: the logical and mathematical; the scientific; the artistic; the socio-historical; and most important of all the theological and philosophical. Along each of these roads to truth the educated man must have walked long enough to have seen where they are going; long enough to have rubbed shoulders with some of

those who will travel far by that route so that they can never be, for him, despised foreigners.

Such an aim, impossibly difficult some would say, can certainly not be realized within the school years. Fortunately there are signs, as for example the Harvard Report of 1945² and the University College of North Staffordshire, that the universities are beginning to think of their responsibilities as seats of learning. It is a university responsibility for several reasons. Some subjects, such as philosophy, are too difficult for schoolboys. Again it is important that the journey along these roads should not stop short too soon. The contempt which some Arts specialists show towards science is often due to the fact that they gave up the subject in the third form, and in their minds it is inextricably bound up with the colour of litmus papers and sticking pins in front of mirrors. Correspondingly, the attitude of some scientists towards theology suggests that their study of the subject was confined to their mother's knee.

It is not a sufficient answer to say that university men learn to study and can read up these subjects for themselves. They need guidance along these roads quite as much as in their specialized studies, perhaps more. The guidance will not necessarily be through lectures; the seminar or discussion group will often prove more effective. But they must be given a lead. And always before us the aim must be clear; understanding and sympathy, the stimulation of interest in and taste for a new approach. At all costs we must get away from 'a good background of general information that he ought to know', or the grammar of a subject in such detail that he never 'speaks the language'. We must learn to be selective. In the artistic field we shall probably be content with two or three of the great fields of human achievement, say painting and poetry or music and drama; and even within those fields we shall be selective. Rather than attempting to survey the whole history of European painting we may choose to study the French Post-Impressionists, our aim being to create an interest and establish a power of judgement that may grow and develop into a lifelong source of pleasure. In some cases,

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if we are specially successful, it may also result in the practice of the art, for the educated man must be able to do things, and not only criticize the achievements of others. Once the road has been signposted we may indeed leave it to the individual to read for himself and develop further those particular interests that have attracted him. The tragedy is that the university does so little to set its students on paths other than the one which happens to lead to a particular specialist qualification. And this arises in all probability from a confusion of ideas about education.

Take for example the pathetic faith in foreign languages. Alarmed by the degree of specialization of their students at entry, a common reaction of university authorities is to insist on their students knowing another language, adding, say, Latin or Greek to a requirement of French or German, as though this automatically ensured a wider education. In practice it often has the opposite effect, ensuring that the student will waste the time he might have spent educating himself in laboriously acquiring a linguistic technique he will never use and will forget within a few months of gaining his entrance requirement. A hundred and fifty years ago an Englishman who could speak two or three languages besides his own usually was well educated. He had learned them with a purpose and it probably meant that he had travelled widely and been brought into intimate contact with greater cultures than his own. But this is not what it now means, nor is this what university entrance examinations in language test. It is significant of the confusion of thought that the language most often insisted on, namely Latin, is one which by its nature cannot lead to greater international understanding and opens the way only to a culture inferior in many ways to those of Germany or France and certainly to that of ancient Greece. But perhaps it is not intended to lead to anything—certainly it very seldom does.

The need, then, is for a re-assessment of what it is that differentiates an educated man in the twentieth century. Once the aim of understanding and sympathy, rather than basic information and skills has been established, it becomes pos-

sible to give to the products of our universities in addition to their specialist subject some acquaintance with the four other fields of human endeavour.

They should have thought about and talked about at least one branch of abstract logic. They should have pursued at least one line of inquiry in an experimental science and gained some understanding of the scientific attitude and the range of its achievements. They should have tasted the joys of at least two of the arts and developed a love for them which may be expected to last. They should also have learned how to arrive at sound judgements on important political and social questions of the day in the light of their historical setting. Finally, and most important, they should have come up against the greatest problems of all—religious, philosophical, and moral, and know where they stand.

In spite of the progress in educational techniques which has taken place in recent years with our increased understanding of the learning process and improved facilities, the fact remains that in principle Western education is extremely conservative. Nowhere is this more apparent than in its failure to come to terms with the growth of science and technology. As Sir Eric Ashby explains in his book, *Technology and the Academics*, the present serious cleavage in Western education between Arts and Science is the result of this inability and unwillingness of our educators to welcome with open arms the new fields of human knowledge in the sciences and technical subjects. To the industrial and technical revolution which has brought about the most significant and far-reaching changes in human social life ever known, the academic world contributed practically nothing. In the first half of the nineteenth century when the rapid expansion of Britain's wealth was taking place, there were some who urged the need for training some of our ablest students in science, and particularly in applied science. But their voices went unheeded. In 1861 the Headmaster of Winchester told the Clarendon Commission on the Public Schools how impossible it was that scientific subjects should ever become a regular part of the school timetable. He was only expressing the general view of

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the educational world of less than a hundred years ago, a view which, as Ashby points out, is still inherent in many educational institutions today. It has certainly influenced the balance between academic and technical education in East Africa. One result of it in the last century was that men like Mond and Siemens were able to take applied science degrees in their own country, Germany, and then establish themselves successfully in British industry like imperialists in a backward area of the world.

The need, however, for trained scientists and technologists became more and more pressing, and by degrees a rival and more powerful culture and education grew up alongside the traditional literary education. The result is a cleavage in Western civilization and in Western societies, and across the gulf no adjective is more commonly hurled than 'uneducated'.

The Rede lecture at Cambridge, delivered last year by Sir Charles Snow and published under the title *The Two Cultures and the Scientific Revolution*, presents an unanswerable case for reviewing our higher education and attempting perhaps to re-create some central common core. While retaining our specializations, perhaps to a lesser degree than hitherto, or on a narrower front, we need to plan the kind of society we envisage in the future and the kind of education which will bring it about. Snow, who has a foot in both camps, being both a physicist and a novelist, said: 'This polarization 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, and I repeat that it is false to imagine that those three considerations are clearly separable.'³

For Britain, with its large population occupying a small island with insufficient agricultural land and none of the natural resources relevant to the atomic age—and still with considerable overseas commitments to underdeveloped areas—the problem is specially acute. The re-organization of her educational system is probably essential to survival. To some extent it is already taking place. Thus a great expansion of university and higher technical educational facilities is occurring, though not perhaps with any unifying and co-

herent educational philosophy behind it. Slowly under economic pressures a greater and greater proportion of the ablest young men and women are becoming specialists in the scientific fields, for some parents and most children can read the writing on the wall. In May last year there was staged in London a great Careers Exhibition, at which all the main industries and professions of Britain, from the Post Office to Dairying, from the Church to the Coal Board, displayed their needs for manpower and woman-power to the boys and girls about to leave school. They sought to explain the kind of work they had to offer and the sort of qualifications for which they were looking. As the visitor walked round it was staggering and in some ways alarming to observe what a very high proportion of jobs now require a scientific education. The overwhelming majority would have been better done by people possessing a scientific background, even where this was not insisted upon.

Unfortunately, the need to produce a surplus of trained scientists and technologists for export, not necessarily for permanent export, to the poorer areas of the world, has hardly begun to be realized, though the Commonwealth Education Conference in July 1959 showed some awareness of the problem, and some recognition of the obligation. It proposes to meet the needs of the underdeveloped areas by offering training facilities to considerable numbers of students from these territories in the universities and technical colleges of the Commonwealth. But whether the basic training and education in the poorer territories is yet strong enough to supply the candidates for these places is highly doubtful.

Let us briefly examine the general education, the non-specialist element, that is, of the two cultures. The reason that some find the growing demand for scientists alarming is of course that they doubt whether scientists are fully human, as a result of their specialized education. Even such distinguished educationists as Sir Richard Livingstone and Lord James feel that the general education of scientists is a more important and pressing problem than that of the Arts specialist. It is a more immediate problem, they feel, because

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of the growing numbers of people involved; because scientists are shouldering increasing responsibilities for others, and exercising greater influence than ever before. Thirdly, James argues, it is more urgent because of the nature of general education itself, the ability to think and talk rationally about the perennial problems of life and society and to make value-judgements in a variety of fields. Such judgements, he points out, can arise spontaneously from an education in the humanities (though of course art, literature, and history *can* be turned into narrow and sterile specialization just as much as chemistry or mathematics). They are less likely to do so from an education in science alone.

Without necessarily supporting this view let us examine the assets and the deficiencies of the man educated on the science side, basing our assessments on the five lines of human thought considered to be essential. The first two are fundamental to science. To an ever-increasing extent mathematics is the essential tool subject of science and if he has not a sound understanding of logical processes he is not likely to be much of a scientist. It is safe to assume that he has a sufficient knowledge of scientific method and insight. The aesthetic side of his education is more problematical. Interest in and enjoyment of music is probably more common among scientists than among non-scientists if one may judge from college orchestras and musical societies. In the visual arts they are less conspicuous, though the annual art exhibition by members of the British Association for the Advancement of Science leaves most provincial Art Clubs a long way behind.

It is in the field of literature that the weakness of a scientist's education is usually apparent. Snow reports interviewing somewhere between thirty and forty thousand scientists since the beginning of the War, most of them below the age of forty. The very best of them of course had read everything those interested in literature talk about. But the great majority were far, far behind. When asked what books they had read they would say modestly: 'Well, I've tried a bit of Dickens'—'rather', says Snow, 'as though Dickens were an extraordinarily esoteric, tangled and dubiously rewarding

writer, something like Rilke!' This deficiency could easily be remedied if scientists were expected, during their sixth form and undergraduate years, to read two or three books a term from a selected list, and discuss them intelligently at the end. The gain in reading facility might incidentally make them better scientists.

But of course the Arts have much more to give, and it requires the most gifted of teachers to bring his pupils to enjoy the 'Moments of Vision' which Sir Kenneth Clark described so well in his Romanes lecture of 1954. Both the artist and the scientist rely at the highest levels on the creative imagination, both experience those moments of vision when the disorderly falls into place, when some point of reference, individual or social, is suddenly seen to have new significance. Each has something to contribute to the other, given an increase in understanding.

In the field of history, sociology, and politics, the scientist starts with the considerable advantage of a forward-looking approach and a social conscience. He is at home in the present and confident in the future. As C. H. Waddington points out in his book, *The Scientific Attitude*, the concept of the scientist as the cold dispassionate observer of human and ethical problems is a fiction. He sees that science and technology have gone far towards removing poverty, overwork, sickness, and squalor from the masses of Englishmen and Americans, and longs to see them do the same for Asians and Africans. Where the scientist seems to fail is in a naïve optimism that all human problems are simple and capable of solution by experiment and observation. And this could easily be corrected by a course in history and politics at a more mature level, which would result in more balanced thinking and judgement.

In the field of philosophy, ethics, and religion it is difficult to judge which of the two educational streams is the more defective. It is surprising to find, for example, in the book just cited, that Waddington claims as specifically scientific a definition of goodness he could have found in Plato's *Republic* (which, of course, Plato entitled *On Goodness*). Some extraordinary misconceptions about Christianity appear in the

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writings of some of the greatest of scientists. Yet one has only to teach philosophy to a mixed class of Arts and Science graduates to discover that a total lack of background knowledge and interest is quite as common among the former as among the latter. Science is of course deeply committed to one of the great human values—truth—and most scientists are in fact as interested as others in the great moral problems of the day. But they need guidance at some point, and probably this would best come in the university years or through adult education classes of some kind. There is no lack of good will and thirst for education. Many scientists want to see their scientific humanism in relation to other schools of thought, and long to delve below the apparent materialism of their experiments to seek the validity of their concepts.

What is not always realized is that there is a great and pressing problem of the general education of Arts specialists. When these gentlemen hear scientists discussing with animation and obvious interest scientific problems they can't comprehend in a language they don't understand, they tend to say, partly no doubt as an unconscious self-defence mechanism: 'What narrow specialists these scientists are.' They forget that a few minutes before they were holding their own in a discussion of world problems, the latest novel, or last night's Promenade concert. There are some who genuinely believe, apparently, that an Arts degree is in itself a guarantee of general education and culture. This attitude has been arrived at by the simple expedient of defining 'culture', 'education', and 'intellectual' in their own terms. It is an attitude reminiscent of the familiar doggerel written of one of their distinguished predecessors:

First come I—my name is Jowett;
All there is to know—I know it.
What I don't know isn't knowledge
And I'm the Master of Balliol College.

The problem is the more pressing because, for reasons of tradition and the demand for scientists elsewhere, most of our politicians and administrators, most of those who exert the

greatest influence on human affairs, have been educated on the Arts side. Yet their total ignorance of what can now be achieved by modern science and technology unfits them for this degree of responsibility. The administrator of an undeveloped territory who says: 'Of course it will be generations, perhaps centuries before these people can hope to reach our standard of living'—and who directs policy as if this were true, is nothing less than a menace. If he has failed to notice that the Russians in forty years have overhauled the West in technological progress, the peoples he is governing have not. If he can't show them how to do it, they will inevitably look elsewhere.

Almost as serious a weakness in our educational system is the lack of appreciation of what has been achieved by a scientific approach to human problems. By the method of experiment, observation, revision of experimental techniques, testing and then put into operation, the borderline sciences of psychology and sociology have been able to revolutionize such diverse activities as the education of backward children, the selling of an industrial product, and the improvement of relations between workers and management. This kind of science plays little or no part in the education of most Englishmen. Our scientists pick it up quickly because of course it is the way they have been trained to think; to most of our Arts graduates it is a closed book, and here the Americans are far ahead of us.

Is it not also broadly true that an education in one or other of our traditional Arts courses tends to produce an individual who is backward, rather than forward, looking? It is not only that he fails to notice that the Germans have rebuilt in a decade cities that took centuries to develop, he doesn't want to know how this has happened anyway. His studies have led him to believe that the present world is less pleasant than those his predecessors have enjoyed; he is at heart an aristocrat, for his culture was that of the few, and when he contemplates the future he does so with distaste if not with fear. He sees the rival culture rising like a tide to engulf him. 1984 is approaching, and he cannot see any hope of preventing it. Perhaps fortunately for Africa it is almost impossible for a

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young African to be backward-looking, even with the disadvantages of an Arts training.

Without general education, then, it seems that the scientist may be a danger and the Arts specialist a useless ornament. Much thought needs to be given to the contributions the one can make to the other and to the practical techniques for making such contributions effective. Much more evidence is needed on the results of different educational approaches in terms of mental attitudes and social usefulness. For the present one can remind oneself that 'it is the mark of an educated man to expect no more exactness than the subject permits'.

1. Sir Richard Livingstone. *Some Thoughts on University Education*, London, 1947, p. 27.
2. *General Education in a Free Society*, Harvard, 1945.
3. Sir Charles Snow. *The Two Cultures and the Scientific Revolution*, Cambridge, 1959, p. 11.

2: An Aberrant Primate?

I ASK you and myself whether man is an aberrant primate. We know, of course, that man is a primate and that his nearest living relatives are the chimpanzees and gorillas. There can be no debate about that, and the question is whether man is aberrant, and if so, how so?

In what I say I will ask you to think a good deal about gorillas and chimpanzees and what they are like. Related to us though they may be, they are a different kind of animal. Their brains are smaller. Their feet are more like hands and have thumbs instead of great toes, which can take hold of things, as have monkeys, and these feet have short heels instead of long heels like ours. So, by and large, among primates we look strange and aberrant. It appears as though we were the ones who had gone off at a tangent in evolution, as though we were a sort of stepchild of the other primates, almost like an unnatural member of the group.

This has long been hard to understand, and it is still by no means clear how it all came to happen. About a hundred years ago, in the time of Darwin, there was a good deal of talk about missing links between us and our relatives—the monkeys and the apes. It was generally supposed that, to explain man, you should start with something like a chimpanzee and imagine a series of links, or changes, that man had gone through. Suppose you start with a chimpanzee, resting on his knuckles, with a little brain, and a large face. Then through stage one, stage two, stage three, etc., the brain would get larger, the face would get shorter, the chimpanzee would stand slightly more erect, and his great toe would get smaller, a little bit more like our great toe and a little less like a thumb. Bit by bit an ape would change into a man. In fact, a famous German naturalist imagined such stages and even

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gave names to them. The last stage he called the 'speechless ape man' and imagined this to be the creature who existed just before real men came into being. He had an artist draw a picture of this imaginary creature, but he didn't know whether it stood upright or whether it did not, so in the picture he had it lean on a rock.

Now this is all very well for a hundred years ago, but we must be suspicious of these ideas. We know today more about principles of animal life and principles of evolution to guide us. We know that no existing animal simply changes into another existing animal. We know that any animal species must be suited to its way of life and to its environment, and that is how we must look at the problem. We should ask ourselves what good all these imaginary stages between a chimpanzee and a man would have been. They would have been neither fish, flesh, nor good red herring. Would such generalized amorphous animals have been successful in any kind of life? In this very connexion, a famous American palaeontologist said, not very long ago, that if you are an animal you can't make a living being generalized. He was saying in a sort of scientific way that every animal must have a trade and must be suited to a particular way of living—of getting its food, making use of its environment, etc. So it is a matter of grave doubt as to whether something half chimpanzee and half man, half erect and half not erect, would be any good at all. The chances are that it would not. So when we look at ourselves and other primates in this way, we must think of the apes as one definite kind of successful primate and ourselves as another definite kind of successful primate. We can not call them aberrant, and they can not call us aberrant.

So now we must face the question of how we became what we are. In recent years we have learned a great deal about certain things which shed light on this. One is our own nature as human beings, and how we function. Another is more and more about the nature of our relatives, the other primates, and about all the apes. A third is all the fossils of the past. These hold the real key to the story, because, no matter how

much we know about ourselves and how much we know about apes, we would never know about the actual steps on our trail to man, without some idea of the animals who existed along that trail. These are the real missing links, the animals who existed between us and our remote ancestors. It is about them that I am going to talk the most.

The last generation has seen many discoveries which make the story of man seem more real, and give the evolutionary explanation more and more facts to stand upon.

To go back to the beginning means going back seventy million years, when the dinosaurs disappeared and the mammals were becoming the most important animals in the world. Mammals then were small and simple, and our own earliest primate forerunners were like the bush babies of Africa and the lemurs of Madagascar. Nothing yet existed that was anything like man, and nothing existed that was anything like an ape or a monkey. Lemurs and the bush babies lived all over the world, in Africa, in Asia, in Europe, and in North America, living in trees and on the ground, eating insects, nuts, fruits, and so forth. Then after twenty or thirty million years a new wave of evolution took place, and larger, more efficient mammals came into being. Some of them were carnivorous animals like cats, dangerous to small animals like the bush babies. Some of them were animals like rats, who were more successful competitors in many ways of life, so that rank on rank of these early relatives of ours disappeared. Still others, we know, were the very first apes and monkeys. The first of a series of fragments of small apes are known from about thirty million years ago. Then larger, better apes appeared, more like the ones we know. A most important one was Proconsul, who first came to light on Rusinga Island, just around the corner of Lake Victoria, although his remains have since been found in northern Uganda, as well. In fact, I might say that most of the important fossils I am talking about are of African derivation. Proconsul was found in the early 1930s, and has turned out to be quite peculiar, compared to the apes we know, a fine aberrant primate. Instead of a long, strong arm like a chimpanzee, with long fingers, very good for grasping

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boughs, his arm was slighter, and in some ways like that of a man, and in some ways like those of monkeys. Proconsul also had a foot which nobody understands very well. It was like the foot neither of a man nor of a chimpanzee. It seems to have been a foot which could be used for standing upright somewhat, like man, but also possibly for running on all fours like a monkey. So nobody knows quite what to make of Proconsul, in spite of the large number of bones belonging to him that have so far been found. He was certainly successful, because three different species of him have been found, one quite small and one as large as a gorilla. He is a puzzle. You cannot simply look at his bones and compare him with other animals and then say that he was about one-half ape, three-eighths monkey, and one-eighth human. That is just the kind of thing I have warned against, interpreting an animal as a mixture, or a halfway stage. We do not know now what kind of life his really was, and we will not understand him properly until we do. Some day we will understand him better, but we can be sure that he had his own kind of adaptation to his environment, and that he was a successful animal. We do not have to suppose that he went on to become either a chimpanzee or a man, or that he ever became anything except Proconsul. In fact, it seems clear that already at the same time there existed apes which were much more like the chimpanzees and gorillas. That is to say, the kind of apes we know had already begun to make their way in the forests of Africa, Asia, and Europe, and from then on there were a good many species. Clearly, this kind of animal was becoming a successful forest-liver and it is likely that this is the main avenue which brought the development of animals like the chimpanzee and the gorilla, vegetarian animals who lived on coarse fruit, and who were, therefore, best adapted to living in forests where these fruits grew, and where there were trees which made a useful refuge for them. As their evolution progressed, they became the kind of ape we know today, who swings easily in the trees, although he is at home on the ground as well, eating the various kinds of coarse fruits and vegetables the trees can give him. It seems to be for such

reasons that the apes have powerful jaws, with their long canine teeth, useful for opening and chewing the coarse fruits of the forest, nutritious to them but of little use to human beings. At any rate, to get back to the main story, it is quite clear that for many millions of years, anthropoid apes have been evolving so as to become more suited to this kind of environment, and we have the fossils to prove it.

All this makes us feel that at this time there must also have been other animals, not of the same kind, although relatives, who were destined to give rise to man. Unfortunately, we know almost nothing about them. At last, when we get to a time about the beginning of the Ice Age, that is to say, about a million years ago, we come to some fossils of great importance for our own history. Finds of these wonderful creatures began a generation ago in South Africa, and they are known as the man-apes, or the *Australopithecinae*, or Apes of the South. But the most important discoveries have been made only in the last ten years, and perhaps the most striking of all was made by Dr. Leakey in 1959. The earlier ones were found by Professor Raymond Dart of Johannesburg, and Dr. Robert Broom, of Pretoria, both of whom became world famous for their studies of the animals.

The man-ape fossils came to light piece by piece and in a way which kept their real nature from being discovered for many years. The first skull came into the hands of Professor Dart in 1924. It was only the skull of a child, with a face and most of the brain case. It showed what the size and the shape of the head was like. It was evident at once that it was some kind of a relative of ours and of the apes. It was small-brained, and a little large in the face to be looked on as human. Its brain, in fact, was only slightly larger than what you would expect in a chimpanzee of that age today. But its teeth were very interesting. Men and apes have a lot in common in the patterns of their teeth, but this new fossil showed more the pattern that you see in men. Professor Dart studied the fossil a month or so and then published a famous note describing it, in which he said that this was an important fossil and one which he believed was more related to the

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ancestry of man than anything ever found. But the anatomists were not impressed with the fossil, or with Dr. Dart's opinion. They looked at his drawings and they said: 'Professor Dart has made a rash guess. This is an interesting fossil but it is really only something like a chimpanzee.' These men were the ones who eventually had to eat their own words, not Professor Dart, because gradually a few more fragments came to light, first a broken skull and some teeth, and eventually, better and better skulls and bones of the skeleton. Professor Dart and Dr. Broom collected valuable material from four different caves in the Transvaal, and Dr. Leakey found the largest and finest specimen of all at Olduvai Gorge, in Tanganyika.

Now this is the kind of paradoxical thing that the new fossil showed. On a quick look, you would say that the skull was probably the skull of a chimpanzee, because it had a small brain, about the size of an ape's, and a large jaw, although this jaw did not project as much as a chimpanzee's. Instead, it was a long, deep jaw, so that the faces were long and the jaws had deep powerful teeth set in them. At any rate, you have the combination that you see in an ape, like a chimpanzee, or a gorilla, that is to say, a relatively small brain, and a big, powerful jaw. This deserves a second look. Any such skull with a small brain and a large jaw would be bound to look like an ape. But when you look at the details of the teeth, you will see that they are clearly not the teeth of chimpanzees or gorillas. The teeth are large, particularly the back teeth, but these have a pattern like ours. The eye teeth are not large, and you do not see the big, broad teeth in the front of the jaw that you find in a chimpanzee. Instead, they have the rounded row of smaller nippers that you see in ourselves. This is only the beginning. In many other details of the teeth, and in other features which are interesting to an anatomist, it is easy to see that the fossils are like us and not like apes.

When these facts were eventually recognized, and support was given to Professor Dart and Dr. Broom, a search for these fossils was pursued energetically and resulted, as I have said

before, in many parts being found in several places, including parts of the skeleton and not of the skull alone. Already, signs have been noted in the skull that this skull might be poised more erect than a chimpanzee's. But the finding of other parts of the skeleton gave the show away entirely, because they showed from the leg and from the hip bone that these animals walked erect on two legs, like us, and did not shamle along, bent over like a chimpanzee or gorilla on the ground, and did not hang by their arms in trees. Therefore, we know that they were erect animals, walking on the ground like ourselves. This is the important aspect of our knowledge about them.

Now let us look at what all this means to human evolution. It seems safe to conclude that the man-apes represent a real stage in our history. This does not mean that man comes from South Africa, or that the many fossils found there represent our actual true ancestors. As you know, they lived in Tanganyika also, and from teeth and other fragments, it seems likely that they lived as far away as Java and China as well, so that they must have been a widespread sort of animal. So we must suppose that they show us a stage in the story of man. What can we judge from this? I think we can see something we might have expected. It is our large brain which makes us aberrant, if we are aberrant, and the man-ape shows us that this brain, the thing that makes us what we are, was not the first thing to develop when man began to appear, but the last thing.

So we can look at the story of man's appearance once again in this light. Going back again into the time when higher primates, that is to say, monkeys and apes, began to appear, it is evident that while the monkeys continued to run on all fours, like other mammals, another group of higher primates tended, instead, to be more upright than the monkeys, to sit erect or to walk partially erect, like the chimpanzees and gorillas. Such animals eventually develop broad shoulders and flat chests, instead of the narrow chests and shoulders of monkeys. But we know next to nothing about these early ancestors, and it is hard to say whether they lived in trees or whether they lived on the ground, what their way of life was,

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and what evolutionary pattern they fitted into. It is like the case of Proconsul. Even though we have plenty of his remains, we do not know his way of life. But these ancestral apes must have had some such patterns. We know they were successful, if only for the reason that they survived to become the ancestors of the apes and ourselves. As time went on, the larger apes developed in the manner I have described, adapting their way of life more and more to the fruits and leaves of the forests. As this was going on, and as perhaps other kinds of apes, like Proconsul, flourished and disappeared, one ape was not only partially erect, but finally became wholly erect. This was the final key to man's appearance, and when it had been achieved the man-apes of South Africa had arrived. They show us this stage of very early man, people walking on two feet but having small brains and large jaws, that is to say, animals which, as far as the powers of their jaws and the size of their brains went, were like chimpanzees, but animals who lived an entirely different kind of life on the ground, standing and walking erect. Then, and only then, did the brain begin to grow and furnish us with the mental power we now have.

Why did this happen? Why did the brain grow? Undoubtedly because walking on two feet meant having two free hands. Looking again at a chimpanzee, he is equipped with four hand-like feet, or four foot-like hands. He is very good and very capable with his hands, and so is a gorilla. But his hands and feet are not so strictly divided as ours, into hands for handling, and feet for walking. He depends too much on his hands for walking around and hanging by. We do not. Our hands are truly free and we use them not for walking on but for doing things, which encompasses all the manifold things we do with hands. And remember that we watch our hands with our eyes and control them with our brains. So when there came a stage like the man-apes, when animals stood upright, still with small brains, but with free hands, they were able to use these hands far better than any primate or any ape, to practise doing the most careful and delicate things while the eyes watched and the brains took note of what the eye saw and controlled the hands more and

more. Now this is something that the forces of evolution can get their teeth into. I have been saying that the apes have small brains, but this is not quite fair to the apes. They have large brains when you compare them with other animals and small brains only when you compare them to man. Apes are highly intelligent animals, but I would say that their brains are as large a brain as an ape can use. If you are going to live in a forest you can have an enjoyable time, but you can do only the things that can be done in forests. This is particularly true, if you spend so much time eating, sleeping, and climbing in trees, that your arms have become long and specialized. So you can hardly expect a chimpanzee to have a larger brain and more intelligence than he has, and, in fact, I wonder why their brains are as large as they are already. So what I am saying is simply this, that given the new stage of erect walking, represented fortunately for us by these extraordinary fossils, it becomes possible to use hands far more than previously. It was when this stage was arrived at, when our ancestors stood erect and their hands were perfectly free for things other than climbing and walking, that we became true human beings. Now, once again, evolution took charge, and Darwin's principle of natural selection made it rewarding for brains to become larger. This is really a simple explanation. There was no inner force driving man's ancestors to become better, or showing the way to progress. Evolution is really like water running down hill, or taking the easy way. So if you have beings like the man-apes, whose tendency it is to do things with their hands, evolution will respond by opening opportunities in that direction. If better hands than a chimpanzee has can use a larger brain than a chimpanzee has, then it is not too surprising in the light of all we know that the larger brain should at last have arrived. It is an obvious principle, and it was the force which carried us in a relatively short time, a million years, up from the stage of the man-apes to where we are today.

In fact, during the last half million years, we can see this actually happening. We have fossils of a number of different kinds of men, and they show this progress in size of brain

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very well. The famous fossil men of the Far East, Java man and Peking man, had brains not actually much bigger than those of the man-apes of South Africa. Their skeletons were already just like ours, but they, themselves, were only just beginning to march forward in size of brain. In much later times we have the Neanderthal man of Europe and the famous Rhodesian man of Broken Hill, both of whom had brains already as large as ours, but whose skulls and faces were so primitive. We ourselves, and I mean all the living races of man, have skulls that are high and faces that are small and delicate, compared to the Rhodesian and the Neanderthal men. Just where we ourselves came from we do not know. We do not even know how new we are, whether we go back only 50,000 years, or whether we go back about 200,000. At any rate, all of these changes and differences show that evolution has been recent and rapid in man. I think this accents the fact that there was almost a rush, in the direction of larger brains, once this possibility had come into existence.

In the light of all this, then, is man an aberrant primate? Are we as peculiar as all that? I am afraid the answer is yes and no. On the one hand, we are perfectly good primates. We had to be. Our whole nature rests on being the kind of animal that primates are. Our good hands and our very good eyes are things we got from our ancestry with monkeys and apes, and our brain as well. When all is said and done, we really walked erect and developed large brains because of being primates, not in spite of being primates. However, we cannot forget that we are very different indeed from the other primates. We are aberrant. We cannot say that man is just another animal, considering what we can do, considering what puts us on a plane above chimpanzees and gorillas. We can accept them as close relatives, even while we realize that they are simply animals living in a state of nature, and while we remind ourselves thereby of the great differences between us, in all that we can do—speaking, inventing, remembering, teaching, etc. That is the only way to look at human nature and human origin; seventy million years of slow progress and refinement of the hands and eyes of primates so that, when by a for-

tunate turn, the ancestors of man could stand upright and use their hands, these ancestors quite suddenly became true human beings. That is the story of our past. It is based on what we know of evolution as it takes place in animals, and on the evidence which has begun to come from fossils. As time goes on, it is less imaginary and more real. This is what we know today. I wish we could talk about it again a hundred years from now.

3: Mind and Body?

THE nature of the relationship between mind and body is a question that has exercised the thoughts of man for at least 3,000 years—and yet, despite the amount of thought, observation, and experimentation that has been brought to bear on the problem over the centuries we still appear to be a very long way from a satisfactory answer.

The problem is a highly complex one involving tremendous difficulties.

However, the purpose here is not to attempt to answer this question, or even to lessen any of its difficulties, but rather to direct attention to some of its facets which might profitably be considered by anyone who wishes to give the question serious thought.

It is hoped to do this by briefly outlining a few of the more memorable theories that have been propounded in the past, by considering some specific facts and findings, and by indicating one or two current trends.

In considering some of the former attacks on this problem, let us follow convention and start with Plato.

Plato (427–347 B.C.) saw human nature as being divided into two: just as the universe was divided into a material world and a spiritual world, so man consisted of body and spirit—the latter comprising an immortal soul and a mortal soul. Unlike the immortal soul, which is eternal, the material body is unable to escape eventual annihilation.

Plato considered the immortal soul to be the highest aspect of man: it is located in the head and is closely connected with the intellect. The mortal soul was housed elsewhere in the body and had two parts: the one, located in the heart and breast being capable of such attributes as endurance, courage,

love, and will; the other, lodged in the stomach, gave rise to hunger, thirst, and other bodily desires and appetites.

Aristotle (384–322 B.C.) continued to make a basic division of substance into 'form' (soul) and 'matter' (body), but would include also an amalgamation of these. Whether Aristotle believed in immortality is still arguable. Although this uncertainty may be due in large part to the difficulties involved in interpreting his position, Reeves¹ suggests that it is not inconceivable that Aristotle himself was unsure of what he believed in this regard.

Moving westwards to Rome, we find that the principal beliefs were impregnated with Plato's emphasis on the permanence of spiritual affairs and the transitory nature of the material. In consequence, the Stoics—virtue-seeking and world-rejecting—maintained that as the chief good rested in virtue, man should conduct his life according to a rigid standard of behaviour: while basing his own behaviour upon reason and having faith in the divine conduct of the world he should be unconcerned with the fortunes of the passing world and indifferent to personal wealth, status, success or failure.

✓ Contemporaneously, but at the opposite extreme, was the basically materialistic philosophy of life developed by Epicurus (342–270 B.C.) which suggested that the world, like the individual people in it, is composed of atoms. Opposed to Stoicism, which depended upon faith in a spiritual control, the Epicureans held that no such spiritual control existed. Not believing in any form of personal immortality they had no fear of death and saw no need to prepare for it. Generally then, in opposition to the Stoics, the Epicureans held that the chief good rested not in virtue but in pleasure, and therefore we should obtain happiness while we can. However, as Tomlin² indicates, the Epicureans did not advocate unlimited indulgence: the man of wisdom will pursue those pleasures which permit of a life of tranquillity. ✓

The question, raised by the contrast between Stoicism and Epicureanism, of whether body or soul should take precedence was settled for centuries by the advent of Christianity, which maintained that man consisted of both a mortal body and an

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immortal soul, being thus seen as having a potentiality for evil or good—it being possible to achieve salvation only through the immortal soul. Unlike the doctrines expounded by both Stoicism and Epicureanism, true happiness was not to be achieved in this material world, but would be found in a future spiritual life after the death of the earthly body.

A convert from the heretical Manichaean theories to Christianity, St. Augustine (354–430), suggested that man is a rational soul who is able to apprehend things, including God Himself, by reasoning and introspection without the need for sensory data. Nor did he consider reason and faith as incompatible. Rather, we must believe in a thing before we are able to understand it; as Butts³ says: 'Chronologically, faith precedes reason.' Mind itself, St. Augustine saw as non-corporeal and so quite distinct from the corporeal body.

From the fifth century until the sixteenth century, the main body of belief followed the theology of St. Augustine, which in its turn had been influenced greatly by Plato. Thus, there was a long, dark period of more than a thousand years in which little original theorizing was carried out, although many details were superimposed and extensions added to the existing framework. The next major contribution was not until the seventeenth century when Descartes (1596–1650) maintained the dualistic position that human nature is made up of both mind (soul) and matter (body). He considered the body, like matter, to be characterized by both extension and motion and to obey completely mechanistic laws. The mind or soul on the other hand he saw as a spiritual substance, rational, not characterized by extension or motion and therefore free from mechanical laws. He went further, and postulated an interaction between mind and body by suggesting that the mind, while being quite independent of matter, controls the body.

At about the same time an essentially materialistic viewpoint was put forward by Hobbes (1588–1679) who, starting from the standpoint that in Nature there is only matter in motion, considered that all the phenomena of physical nature operate according to mechanical or mathematical laws and

that the material body does likewise. The mind is of the same order of things, being merely a special case of the body in motion, its movements being calculable according to the law of cause and effect.

Into this picture, John Locke (1632-1704) intruded with some conceptions that have had far-reaching effects ever since. Continuing with the distinction between mind and body, he objected to the notion that the contents of the mind (all of which he called 'ideas') are generated or nurtured from within. Nor are there any 'innate ideas'. Rather, we acquire all our knowledge of the external world through sensation. Thus man's mind, a void at birth, acquires its vast store of ideas (knowledge) primarily as a result of experience. Thinking can only occur subsequent to sensation. Here then is the assumption that the cumulative effect of the environment upon the human raw material is all-important.

Locke's ideas greatly modified later educational practices in a number of directions, but perhaps his main contribution to educational thought was, as Curtis and Boulwood⁴ suggest, his notion that both mind and body should be 'hardened'. So that he might achieve restraint and regularity in physical habits, the child should eat, drink, and sleep no more than necessary, he should take plenty of exercise, he should accustom himself to discomfort and he should avoid all over-indulgence and physical excesses.

Locke's emphasis on the joint 'hardening' of mind and body, coupled with his emphasis on the importance of the senses generally, led to the notion of 'a sound mind in a sound body' gaining wide acceptance.⁵

Objecting violently to such materialistic doctrines, Bishop Berkeley (1685-1753) adopted an apparently extreme position by insisting that the essence of the world is spiritual and mental: it consists only of minds and ideas. However, as Stapledon⁶ points out, Berkeley did not deny that physical objects exist, but considered that they consisted only of perceived ideas. To exist, something must be perceived. To explain the permanence of physical objects which are not being humanly perceived, Berkeley maintained that they

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must be perceived in the mind of God. Thus nothing can exist which is not perceptible either humanly or divinely.

Bishop Berkeley was a firm believer. Hume (1711-76), who followed him and extended his ideas, was a confirmed sceptic who held that there was insufficient evidence to postulate the existence of a soul. Nor was there sufficient evidence to postulate the real existence of a material world behind the façade of outer appearances. What exist then are 'impressions' (perceptions and sensations) which are derived from particular experiences and which give rise to ideas.

Despite the wide range of theories advanced by the mid-eighteenth century, many later ones—a number of which had a noticeable impact on contemporary practices—were also propounded.

Rousseau (1712-78), for instance, rebelled against the idea that man is born in original sin. Instead, he argued that human nature is fundamentally good rather than evil and has a predisposition towards right rather than wrong conduct, and consequently the individual can, under guidance, be left to follow a path of natural self-development. The evil that is apparent in man comes not from his inherent impulses but from his contact with his social environment. These doctrines, with their implication that human nature can be modified for the better, had a considerable significance for later educational practices.

The Faculty Psychologists saw the mind as an entity quite distinct from the material body, and itself consisting of independent, potential capacities or 'faculties' such as judgement, reason, knowledge, will, understanding, imagination. These faculties were conceived of as a form of latent 'power' which could be brought into operation and developed by exercise and training. Training one faculty would also benefit others. In consequence, academic subjects requiring a considerable amount of abstract reasoning or 'mental manipulation' (e.g., mathematics) were believed to have special merit as a form of 'mental discipline' or training—a notion which affects present-day educational practices, even though it has no basis in fact.

Near the beginning of this century we find Freud (1856–1939) and the Psychoanalysts, while continuing the fundamental division between mind and body, placing great stress on the importance of an unconscious, as well as a conscious mind.

The Behaviourists⁷ devoted themselves entirely to the study of observable, objective behaviour taking no cognisance at all of consciousness or mental activity ('mind').

In contrast, a group of persons, whom Butts⁸ designates the 'intellectualists', believed the realm of 'mind' to be vastly superior to that of 'body' and intellectual activities to be more important than other activities, so that education came to be more or less equated with 'development of the mind' and 'the cultivation of the intellect'.⁹

Today there appears to be a strong tendency to avoid all dualistic distinctions: not only the distinction between mind and body but also those between inherited and acquired characteristics, between the individual and his society and between man and the rest of nature. Attention is directed not towards their differences but towards their inter-dependence and their degree of interaction—the effect of each on the other. Thus each individual's unique personality is the outcome of the interaction between his unique pattern of inherited characteristics and his unique environment. This approach does not preclude the possibility of the existence of a logical dualism. Rather it is a change of emphasis; a change of attitude.

In general one might say that where dichotomies existed, inter-relationships have arisen.

So far, then, we have pointed to a diverse range of theories each of which attempts to indicate the type of relationship that exists between body and mind. To be adequate however, a theory must be able to embrace, and explain, the known facts. To indicate the necessary complexity of any theory regarding mind and body I would like to point to some of the facts which appear to be directly relevant to the problem and which therefore need to be taken into account by any adequate theory. Although such facts can be drawn from diverse

sources, the ones used here will be confined to those fields of study which Eysenck¹⁰ has expressively—and accurately—termed 'Borderlands of Knowledge'.

The first of these fields of study is what has come to be known as 'extra-sensory perception', or more commonly 'E.S.P.'

It is usually conceded that we acquire all our knowledge through the medium of our senses. E.S.P., however, relates to the acquisition of knowledge through some medium which is non-sensory, and generally refers specifically to either telepathy or clairvoyance. By telepathy is meant the communication of thoughts, ideas, feelings, or impulses from one person to another without the intervention of any of the sense-organs. Clairvoyance refers to a person's awareness of objects or events without the aid of the senses. Until recent years many investigations and reports of these phenomena lacked the scientific exactitude required today, and consequently results were suspect. Today however, largely as the result of the work of J. B. Rhine and his co-workers, scientific rigidity, in both the experimental design and analysis of results, is part and parcel of all investigations. An example of an experiment reported by Rhine¹¹ will illustrate his methods.

The experimenter and the subject were in different buildings a hundred yards apart. A pack of twenty-five cards containing five different symbols (that is, five cards of each symbol) was face-down on the table in front of the experimenter. At an agreed time he lifted the top card and laid it face downwards. Thirty seconds later the subject recorded his guess as to which card he thought it was. Thirty seconds after that the experimenter lifted the next card—and so on. They went through the pack twice (that is, fifty guesses) in one sitting, after which both the experimenter and the subject would seal their results and deliver them to Rhine. Instead of the expected average of five correct guesses per twenty-five cards, the subject averaged 9.9 and maintained this average over 300 trials. In another series shortly after, Rhine stayed in the room with the experimenter, cut the cards, watched the

shuffling of the pack, and observed the recording of the results. On this occasion an average of 9.3 was maintained over 150 trials.

In both these investigations the odds against obtaining these results by chance are more than a million to one. If these results did not happen by chance how they did happen is a question that ought to be of considerable interest to mind/body theorists.

Similar results have been obtained in telepathy experiments in which the experimenter would look at the card and the subject would try to read his thoughts.

Over the years Rhine, and others, have carried out numerous confirmatory experiments, many of which provided spectacular results. While large-scale experiments involving large numbers of people appear to give approximately chance results, there nevertheless appears to be a small number of individuals who can produce positive results fairly consistently.

Naturally Rhine's critics, and he has many, have attempted to discount his results in terms of inefficient methods. The first criticism was on the grounds of statistical inadequacies, but in recent years his methods have received the approval of such authorities as the American Institute of Mathematical Statistics.¹² Inadequate shuffling of the cards was suggested, but checks showed that the sequences were quite random. Criticisms such as unconscious whispering, stopping the trials when the subject had achieved an above-average score, errors in recording and checking, reporting only trials that gave positive results, clues on the backs of the cards—and a host of others—all fell by the wayside.

It is Rhine's contention that the results require some explanation other than that they were caused by chance, and that therefore the logical conclusion appears to be that some people obtain knowledge without use of the senses as we know them.

From time to time a variety of concepts such as 'brain-waves', 'radiant energy', 'short-wave radiation', and 'electromagnetic radiation' have been utilized in order to formulate hypotheses to account for these phenomena. However, all

such attempts to explain the data in physical terms have been singularly unsuccessful. Rhine himself is quite satisfied that extra-sensory perception transcends the laws of physics and therefore must 'be essentially extra-physical' and that 'there is more to the mind of man than physical law can encompass'.¹³ The body/mind theorist must decide whether or not he agrees.

Let us move now to the field of hypnosis. In hypnosis a common, but nevertheless striking phenomenon is known as age-regression. With age-regression, it is suggested to the person hypnotized that he is living in some previous stage of his life. 'Taken back' in this way, he appears to re-live earlier incidents of his life. Weitzenhoffer¹⁴ suggests that his present personality is exchanged for one he had at an earlier age. Generally, his behaviour becomes child-like, and tends to be appropriate for the age to which he is regressed. His 'accomplishments', such as drawing ability, vocabulary, and handwriting, tend to become greatly simplified, his emotional reactions resemble those of a child and his motor co-ordination deteriorates. There is evidence to suggest also that a person's intellectual functioning tends to approximate the level that would be consistent with the regressed age.¹⁵ LeCron¹⁶ reports a convincing piece of evidence which was found by Gidro-Frank and Bowersbuch, who conducted a test of the Babinski reflex. When the sole of the foot of a normal adult is stroked the big toe curls down (flexes). However in infants up to about seven months the big toe curls up instead of down (dorsiflexion). In the test the subjects were regressed to less than six months. Between five and six months the normal flexion changed to dorsiflexion. These findings have been confirmed by LeCron. Weitzenhoffer¹⁷ reports that he has observed neonatal reflexes during age-regression.

A further striking phenomenon demonstrable under hypnosis is the manner in which the individual's sensitivity to pain can be decreased.

As a result of this, hypnosis^{18, 19} and self-hypnosis²⁰ are now frequently used as aids to childbirth. Although it is possible to induce complete anaesthesia by hypnosis, it is more customary to use it as a means of obtaining complete physical

and mental relaxation, in which condition it is much less likely that the patient will need anaesthesia, hypnotic or otherwise.

Hypnosis is also used commonly in dentistry. For instance, Burgess²¹ reports an extensive piece of research in which seven dentists obtained the co-operation of 250 patients from their daily practices. About five per cent. of these patients could not be hypnotized, three others could not produce hypnotic anaesthesia and five cases were failures. On the remaining 230 patients all types of dental operations were performed, including general extractions, preparation of deep cavities, removal of 'nerves', and removal of impacted teeth. Bleeding and salivation were also controlled hypnotically.

No chemical anaesthetic of any kind was used. No patient felt any pain or discomfort during or after the operations.

Closely related also to the problem of body/mind relationships is the fact that as Burgess²² reports, some dentists have trained their patients so that they can place themselves in the trance state, produce anaesthesia, control salivation and bleeding, and at a signal awaken themselves.

One other type of hypnotic phenomenon should be mentioned. An example, reported by Ullman,²³ will illustrate this. During treatment for a war-time neurosis, a twenty-seven-year-old soldier was made to re-live, under hypnosis, his battle experiences. At that point of his experience where a shell had exploded, it was suggested to him that a small, hot, shell-fragment had grazed the back of his hand. Simultaneously, to strengthen the suggestion the doctor gently brushed the back of the patient's hand with a nail-file. Paleness was immediately noticeable. In twenty minutes a narrow, red margin appeared. Hypnosis was then ended. One hour later, blister-formation was noted. Four hours later a full blister was present. The next day the superficial skin sloughed off, leaving a raw, denuded area. Three days later it was healed completely, leaving no scar. Similar instances are not uncommon.²⁴

As far as hypnosis is concerned, then, we have seen that any comprehensive theory of body/mind relations must take into account the following findings :

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- (a) hypnosis is a possibility. Then, under hypnosis,
- (b) sensitivity to pain can be removed;
- (c) apparently genuine age-regression accompanied by corresponding physiological changes can be induced;
- (d) hypnosis can be self-induced;
- (e) localized destruction of body-tissue can be brought about.

Again it would seem that a theory of body/mind relations which will account adequately for merely such findings as these will need to be highly complex.

One other field of study that I would like to touch on is that of the psychosomatic disorders. The name itself suggests the existence of a relationship between 'mind' and 'body', and refers to those bodily disorders which arise without any apparent corresponding physical cause and which thus appear to be primarily the result of psychological factors.

✓ For instance, in the area of gastro-intestinal disturbances we find that lack of appetite, excessive appetite, digestive disorders, and nervous vomiting can all arise as a result of emotional tensions. It is also well-known that peptic ulcers—often serious enough to require surgery—are frequently found in people who are ambitious, assertive, and hard-driving, who are faced with frequent obstacles and frustrations, and whose daily pattern of living incorporates an excessive amount of worry, drive, and tension. However, it has also been found that beneath this 'hard', competitive exterior there are often strongly dependent characteristics. Other investigations indicate that anger, resentment, and hostility may play an important part in the production of peptic ulcers. An interesting point to consider in connexion with a theory of mind/body relations is that very rarely are cases reported of peptic ulcers in people who are calm, contented, and happy. ✓

Strong emotions—particularly anger which is not discharged—can be an important factor in causing blood pressure. Such heart conditions as palpitations, heart pains, and rapid beat may be caused, not by structural damage, but by

emotional tensions, the most common of which appear to be hostile, aggressive impulses perhaps coupled with anxiety.

Frequently recognized also is the fact that the skin can be affected in a variety of ways by emotional states: fear, causing blanching or paleness, and anger, shame, or embarrassment causing blushing are common examples. More specific symptoms such as rashes, hives, and eczema can also be the result of psychological tensions.

Psychological factors may also be the cause of respiratory disorders. It has been found for instance that bronchial asthma is often closely related to such emotional factors as repressed anger, over-anxiety, lack of self-confidence or dependence.

Even extreme cases of bodily disorganization can arise from acutely abnormal psychological states. Thus, in the neurotic condition known as conversion hysteria, paralysis of a limb may occur without physical causes, or blindness may occur, the patient being quite unable to see even though the eyes and optic nerves are quite normal.

One point for emphasis here: it is not suggested, of course, that these disorders are always, or only, caused by psychological factors. Frequently, they have a purely physical origin. Frequently, physical and psychological factors are joint causes.

Like hypnosis, the study of psychosomatic disorders points to an area where there is a highly complex inter-play of psychological and physical factors—an area where, as White²⁵ suggests, '. . . mind and body overlap, where it is no longer possible to distinguish between them'. Equally complex relationships between mind and body are found in such activities as remembering and forgetting, thinking, perception, dreams and nightmares, hallucinations and delusions, sleep-walking, and in what has come to be known as 'brain-washing' and 'thought-control'.

What direction is modern thinking taking in trying to explain the intricacies involved in the relationship between mind and body?

A surprising, but promising approach for further research

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and theorizing into the mind/body problem stems from work currently being carried out on those much-publicized machines known as 'electronic brains'. Much of the observable 'behaviour' of these machines is very similar to the sort of behaviour that we normally associate only with the functioning of the human mind.²⁰

For instance, as Sluckin²⁷ points out, they can carry out highly complicated calculations, they are able to store information (that is, they can 'remember'), they can choose between alternative procedures (that is, they can make 'judgements'), they can make logical inferences and they can play games like draughts or solve chess problems. As a result, these machines are attracting the attention of workers from such widely-separated fields as electronic engineering, mathematics, physiology, philosophy, and psychology. Consequently 'electronic brains' and telecommunication theory are now being studied in conjunction with the functioning of the human nervous system.²⁸

A further development with intriguing possibilities is the recent report²⁹ by Professor Hirshberg of the Weizman Institute of Science, Israel, of the discovery of a photo-chemical process which it is claimed has the same features as a 'memory'. More recently, he indicates, new compounds have been developed which will provide a 'memory' of more practical use by allowing it to be made in the form of a 'convenient plastic sheet'.

These are strange paths for mind/body theorists to be treading. That no one can say where these paths will lead adds to their allure. What seems certain is that while they are being trodden many byways at least worthy of exploration will be uncovered.

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4: A Logical Thinker?

ON being faced with the question 'Is Man a Logical Thinker?' one experiences an immediate, unhesitating impulse to answer 'No'. However, this may, let me hasten to add, well be the result of a misconception, at least in part.

If you ask me why I was tempted to answer 'No', I shall probably relate some of my experiences of prejudices—other people's prejudices, most likely—and also point out that man's action, particularly his collective action, does not appear to be governed exclusively by rational motives. But saying that logical thoughts do not provide the whole cause of man's action is not the same thing as saying that they do not occur. In order to find them and describe them we might have a look at the process of logical thinking itself. This, I am afraid, is what holds my own interest at present, and I shall from now on discreetly ignore the question as to the occurrence or absence of logical thought in daily life.

Under the subject of logic one usually discusses two types of mental activity: inductive and deductive. Induction is the recognition of regularities in a body of data, the process sometimes described as distillation of laws from our experience. Philosophers have written volumes on this process, putting to rights our ideas of experience itself, as well as trying to describe the distilling apparatus, or the abstracting process. I am not prepared to discuss the theories developed, partly because I believe that you are not looking for a discourse on theory of knowledge in this series. In my mind there is no doubt that an important element of induction is a process of matching new impressions with previous material, already arranged in our minds. However, it may be of more interest if I tell you briefly of the contribution which the discipline of statistics has to make in this field.

To begin with, the classical Aristotelian syllogisms—the best known one asserts that, since Socrates is a man, and all men are mortal, therefore Socrates is mortal—these syllogisms have been much refined and subdivided. Many names of philosophers and, no less, mathematicians are associated with these efforts, which probably culminate in a two-volume opus by Polya,¹ one of the more fruitful mathematicians to find asylum in the United States before the last war. Polya distinguishes a number of patterns for plausible inference, the simplest of which is the following :

Suppose we have two statements which I shall call A and B. A or B could either be true statements or statements which are not true. Suppose further that A implies B. By this I mean that B follows from A, is a consequence of A. Suppose lastly that B is found to be true. Polya says that now A must be thought of as more likely than it was, before we had verified its consequence. In other words, if a consequence of a hypothesis is found to be true, that makes the hypothesis more likely in our eyes. A detective may say that the bruise on the skull of the victim was 'consistent' with a blow from the stick before the court. He is trying to make the hypothesis that a blow was struck with this stick, more likely by saying that the blow would result in a bruise, and such a bruise is actually there.

Polya exhaustively discusses this concept, which he calls credibility of a theory; which increases whenever a consequence of the theory is verified, and which would, of course, be destroyed once a consequence was proved not to hold. Credibility has certain near-arithmetical properties, and Polya establishes a calculus for it.

The same sort of thing happens when we test a statistical theory. Statisticians have given up hope of ever being able to assess the probability that a certain theory is true. Perhaps I may dwell on this point a moment. Taking one view, the notion of probability is established in one's mind as a relative frequency of occurrence. For this, a number of instances must be available, and, preferably, a sizeable number. Probability cannot be simply applied to any situation in which the issues

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are in doubt. It is quite impossible to assign a reasonable notion of chance to the question whether life exists outside our solar system. The question may one day be resolved as our experience grows; but there is no statistical basis for holding it 70 per cent. probable.

Or, again, suppose I have a theory that most human beings in this world are less than six foot tall. It would not do to say that I am probably right, for probability will involve something like finding many worlds in which human beings tended to have a certain height. All the same, imagine the following experiment:

We ascertain reliably by postal means the height of all adult men whose second name starts with A-X-Y-B. These constitute a sample of all adult men; we find that there are 504 of them and that 451 of these are less than six foot tall. Surely we should like to conclude something. A slightly simplified picture of what statistics will do in this situation is the following. We set up a theory on the average height of men, and then, on the basis of this theory, we assess the probability that our 504 men should be as tall as they are. If this probability assessment is ridiculously low, then we conclude that something is wrong; in the jargon, we say that: because the composition of the sample is *improbable* in the light of our theory, the theory is *unlikely* in the light of the sample; thus distinguishing likelihood from probability; and, in fact, we regard our theory as disproved. If the probability assessment is high enough, we say that nothing has been found to lambast the theory; but again the jargon forbids us to say that it has been confirmed. One can imagine Polya grinning quietly at this point; likelihood corresponds fairly closely to his concept of credibility and, he would say, the credibility of the theory has certainly increased. Or, to put it another way, if a large number of samples fail to disprove a theory, one has the right to be despondent about ever throwing doubt on it.

So much for the inductive aspect of logical thinking. The other aspect I should like to touch on is the deductive aspect. And here I should like to concentrate on the contribution mathematics has to make. Some mathematicians, including

living ones, seem to think that any utterance that makes sense is a mathematical one. Plato even regarded mathematics as the constant pursuit of the Deity! I shall take a more restrictive view of the activity which nets me a salary.

A logical argument is essentially a chain-like structure; the order in which considerations are adduced is as essential to the whole as their relevance. This is because a line of reasoning can be broken up into smaller steps, each of a well-defined type, each of them fitting together with its neighbours in the line. It is most important never to lose sight of this structural quality of a logical argument, and I make no apology for insisting on it. If I say: 'Kisukus have red feathers and short beaks.' 'Carnivores avoid things they dislike but male antelopes rush at them.' 'Bulls like daisies but not Kirikitis because they are red', few people in this audience would conclude unhesitatingly that it is unsafe for Kisukus to sit in a meadow where a bull is grazing. Yet I have implied, among irrelevancies, that bulls dislike the red feathers of Kisukus and are therefore apt to rush at them.

I must now descend into much deeper water, with a short discussion of some paradoxes and their rôle in logic. Many people are familiar with paradoxes propounded by Greek philosophers and with the modern answers to them. As an illustration, may I retell the diverting paradox of the lying Cretan? The essence is that on the authority of one no less than St. Paul, a Cretan prophet is on record as saying to a Greek that all Cretans were habitual liars. This statement perplexed the Greek; for if it was true, it was likely to be false; while, if it was false, it was another lie by a Cretan. More precisely, if a man says 'The sentence which I am now uttering is a falsehood', then the oscillatory process begins in earnest. For, if he is right, he is uttering a falsehood, so that the sentence is no falsehood and he is wrong; and so on. Carnap's² answer to this would be, I think, that what he says simply makes no sense—no more than the sentence 'All Never Flies Porridge Fine'. Even though it has a semblance of a syntactical construction, it is not a statement. But the answer has not always been the same, and the paradox has been

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countered with such arguments as: When you are talking about a sentence, you must have a sentence in your mind; and you must not be in the process of formulating one.

To many people this solution, dating from the early part of this century, may seem to afford a more satisfactory answer than Carnap's. It has, in its time, had a great influence, leading to the so-called Theory of Types, and the philosophically fruitful notion of Meta-Languages.

Other paradoxes or antinomies have shown in their own way that the verbalizing type of reasoning, for which people have been groping so long, led to serious difficulties. Brouwer already, in his unpublished doctoral thesis, had uttered warnings of these dangers; he insisted that mathematical activity (taken in a very wide sense and including all deductive reasoning) is to be distinguished from its translation into words and he thought that, in particular, some commonly accepted verbal rules are actually wrong. The strict structure of a logical argument, which, in the simplest case, is lineal, and, otherwise, has chain-like portions coming together at pre-selected points, all this makes it possible to turn these arguments into objects of a mathematical investigation. Many people have toyed with this idea, including Euler; but mostly, until the middle of the nineteenth century, without our modern ideas of the objective. Most efforts were directed at finding diagrams and mnemonics, to help in keeping a large number of possibilities before the mind's eye. The Cambridge don John Venn (1834-1923) may have had a little more in mind when he denoted propositions by circular discs drawn on a piece of paper, and showed that common parts of such circles could represent combinations of such propositions, the total area representing their disjunction.³ Extensive efforts were directed at perfecting logic diagrams, by De Morgan,⁴ Hamilton,⁵ and a host of others. In this way a type of geometrical treatment (really more *Analysis Situs*) of logic structures was obtained. This development has perhaps culminated (at least, one hopes, for a considerable time) in the work of the American philosopher⁶ Peirce (1839-1914) and may have found its most entertaining expression in the writings of Lewis Carroll.⁷ The funda-

mental contribution, though, was, by common consent, made by George Boole⁸ in his *Laws of Thought*. It represents a major break with the tradition of manipulating the classical syllogisms. The combination of logical possibilities is demonstrated to form a criss-cross, lattice type of diagram with various statements at the nodal points. The lines are made to represent implications, and certain identifications which can be made in such a diagram represent the laws of thought. To give a very sketchy idea of these laws let me illustrate one that is of great mathematical interest:

A murder has been committed. Everybody with a few exceptions has an alibi. Two detectives are theorizing about it. The first thinks that either Mr. A was at the scene of the crime or else both B and C were there. The second detective has deduced that either Mr. A or Mr. B must have been present at the crime, and, a little later, it dawns on him that either A or C was there. According to Boole's *Laws of Thought*, the two detectives are in complete agreement.

The *Laws of Thought* afford the tools to reduce compound statements to a so-called normal form, so that the question whether two statements come to the same thing can always be finitely decided. Thus, we can compare statements and their validities. Curiously, the diagrams show complete analogy with those abstracted from the combination of mathematical point sets; and also with those describing the paths along which a current can flow, if a circuit contains a number of (open or closed) switches.

The final opening up of the subject, so far, occurred in the 1930s, when steps in a deductive chain were numbered in a special manner by Gödel.⁹ His numbering started with elements such as connectives and variables, was extended to statements, and whole deductive systems. The numbering device, in a sense, reduced the study of systems to arithmetic. In particular, a convenient way was provided for showing that a chain is finite, by simply estimating its number and so its length. Another great virtue of the arithmetization was that it provided a new impetus to use, fully, the possibilities of the idea of recursiveness. This is a notion which had been

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well and adequately studied within the group of algebraic disciplines; and, in its very earliest and most fundamental form, it is an essential ingredient in the definition of natural numbers.

By means of recursiveness, mathematicians gained an idea of what was successively definable, and successively deducible from a given set of notions and relations. Gödel himself already obtained in this manner a fundamental result which I would like to exhibit here as a logical curiosity :

Every logical system which is not too trivial contains undecidable portions. In other words, it contains statements which cannot be verified or disproved. These are not, be it clearly understood, in the nature of the sometimes slightly tricky or finicky trivia with which an undergraduate's mathematical training is traditionally concluded; I refer to his examination questions.

The arithmetization of logic has transformed the subject by exhibiting connecting links which had not been suspected; as a result, logicians have moved on from the problems which confronted them thirty or forty years ago; some of these problems have been solved, and shelved; and others have proved insoluble or, even, have lost our interest. Many mathematicians remember the titanic word battles concerned with mathematical foundations of the first quarter of this century; compared to these, the thunder of the more recent exchanges on the content of the Italian geometrical developments is only a faint echo! Let me hasten to add that, ultimately, the situation has often shown no one to be actually wrong; but as a result of a clearer insight into the amount that can be accomplished, starting from a particular foundation, one now tends to feel far more impartial as to the choice between various possible foundations.

This century would not have been true to itself if it had not produced a spate of machines and devices to facilitate logical thinking; or, according to some, to supplant it! We have to distinguish here between logic machines and computers, and I should like to elaborate on this in a few words.

Logic machines are contraptions into which one feeds a

number of premises and from which one can then pick out what is known as conclusions. These, of course, contain nothing that was not in the premises; the machine does not add to one's knowledge! Even worse, perhaps: it does not leave anything out from the premises, either. And so, in their present form, they become unwieldy rather quickly, and seem to be labouring points which are slightly out of the main channel of our interest. Perhaps one could say that they have missed the boat somewhat. We can imagine a vitalist of early nineteenth century vintage being utterly perplexed at a machine taking over the function of reason—that which he regarded as distinguishing man from beast! However, in the nineteenth century there were no logic machines in the stricter sense; and then came Boole, showing that Thought was subject to Laws, and laws of an algebraic nature at that. Now, as an algebraist, I may be permitted to say that one does not encounter much wonderment at the fact that algebra can be done satisfactorily by machines, and so the thunder of the logic machines has been purloined. We now tend to judge them by efficiency rather than novelty. And, I am sorry to say, they have remained playthings. In any case, digital computers seem to be perfectly able to do what is required in this direction.

Digital computers on the modern scale have, of course, had an enormous influence. What may not be generally known is that, though fast and vast, they are theoretically simple. Davis¹⁰ describes them as containing a 'tape' (that is to say, a row of symbols which the machine reads off, and which act as instructions) and a mechanism to follow the simple instructions: of moving along the tape, of replacing a symbol on the tape by another one from a store at its disposal, and of varying its reaction to the tape, in accordance with an extraneous instruction. The last named, one could say, is a request for additional information, made by the machine: the machine halts, and carries on in one of two or more ways, depending on the answer given it. This description is, on the technical side, not much more adequate than saying that a motor-car is a device to transform the centrifugal velocities of burnt petrol

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fumes into a forward velocity of the driver. But on the theoretical side this is all there is, and incredibly complicated calculations are performed as fantastically long sequences of rapidly accomplished simple operations. Multiplication of two numbers, in the theoretical scheme, requires twenty-three separate instructions, some of which are iterative! No wonder that a whole literature of routines, sub-routines, inductive loops, and the like has sprung up; that programming of computing machines is a profession and that communication within this profession is a serious and urgent problem.

Let me finish by trying to get a little nearer an adequate description of logical thought which, according to my prescribed theme, is a trait of man. Logical is a much abused word and no wonder, for it has, in the guises of various tongues, been with us since the flowering of Greek philosophy. In popular usage it means hardly more than: evident, to be expected, natural. Thus an elderly relative told me once long ago that, since I had left my bicycle outside and unattended for an hour it was only 'logical' that there was no bike when I came back for it. In the sense in which I have used the word, a little more than logic was required to spirit the machine away.

Logical thought, then, is a process, of primary importance to every human being, of discovering regularities and assessing their likelihood; of subsuming combinations of premises (which is a job machines or mathematicians can also do) in a consistent manner which serves his purposes.

1. G. Polya. *Patterns of Plausible Inference*, Princeton, 1954.
2. R. Carnap. *Logical Syntax of Language*, Routledge, 1937.
3. J. Venn. *Symbolic Logic*, Macmillan, 1881.
4. A. De Morgan. *Formal Logic*, Taylor and Walton, 1847.
5. Sir W. Hamilton. *Discussions on Philosophy and Literature*, Blackwood, 1886.
6. C. S. Peirce. *Collected Papers*, Vol. 4, Routledge.
7. Lewis Carroll. *The Game of Logic*, Macmillan, 1886.
8. G. Boole. *An Investigation of the Laws of Thought*, Walton, 1854.
9. K. Gödel. *Monatsh. d. Math. Phys.* 38, 173-198.
10. M. Davis. *Computability and Unsolvability*, McGraw-Hill Book Co., 1958.

5: Seeker after Truth?

'MUCH there is that is weird,' said Sophocles, 'but naught that is weirder than man.'

One of the desires of paradoxical human nature is to know the truth—both the truth about the world outside it, and the truth about itself.

But how may truth be obtained?—I well realize that here I am entering on ground where angels fear to tread.

May I begin where the ice, if no less thin, is more familiar to me?

First, then, let us ask ourselves such questions as: What is the kind of truth that science gives to us; and how is it obtained?

I would like to illustrate some answers to these questions by considering a few developments in the *natural* sciences. In making this choice of limitation, I am not, however, lending my support to the outmoded doctrine of 'naturalism', which is the assumption that the methods appropriate to the natural sciences (like physics and biology) are of universal validity and constitute *the* scientific method.

The so called scientific revolution of the sixteenth and seventeenth centuries was intimately linked with the geometry of motion and later the mechanics of the motion of the heavenly bodies. The geometrical stage of astronomical advance, accomplished chiefly by Copernicus, Tycho Brahe, and Kepler, was to deduce the arrangement and relative motions of the heavenly bodies from their bewildering apparent motions. Their theories involved a heliocentric or sun-centred view, at least of the planets, in opposition to the notion of a fixed earth which was so natural to common sense. Because this new astronomy disagreed with the Aristotelian and Ptolemaic views sponsored at the time by the

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Church, a well-known controversy resulted, which illustrates the tensions which sometimes develop between tradition of all kinds and science.

The comfortable notion of a central immovable earth was gradually replaced by that of the earth as a rather small planet, rushing around the sun in gigantic circles, and this whole solar system only a minute part of a much vaster universe. Because of its familiarity to us, this picture does not cause our hair to stand on end, nor are we in perpetual fear that this planet might collide with another planet or with a giant meteorite.

The only mechanics available at the time to explain this new astronomical picture was that of Aristotle. The basis of Aristotelian mechanics was that all motion was caused by a force—a very natural idea I think you may agree. If then the planets are moving, the problem is who or what provides the force to keep them in motion, since, according to Aristotle, a planet would stop if its driving force were removed. The reply was that, as the planet moved, the air rushed in behind it to fill the space that would otherwise have been left empty, and this rush of air continued to propel the planet!

So—the air rushes in because the planet moves, and the planet moves because the air rushes in. A rather circular argument if there were no other objections to it.

Those of us who have done a little physics may recall Newton's approach as formulated in his laws of motion, where force is no longer defined as the cause of *motion*, but as the cause of *changes* in motion. According to this theory, a planet, if not acted on by any forces, would move uniformly in a straight line. Newton was heir to a vast amount of accurate astronomical observation which showed, among other things, that the planets move in an elliptical path round the sun, which is at one focus of the ellipse.

There is not time to consider the details, but Newton showed that this vast wealth of astronomical observation, together with the commonplace experience that bodies fall to earth if unsupported, could all be *understood* by accepting only two hypotheses:

(1) That his laws of motion were correct.

(2) That his law of universal gravitation was correct—namely that any two bodies attract one another in proportion to the product of their masses, and inversely as the square of their separation.

Now that is all of Newton's physics that we need to help us to understand something of the nature of scientific theories or explanations.

First let us consider these two hypotheses on which the whole edifice of Newtonian mechanics rests.

Newton's laws of motion give precise form to the concept of force. The laws express opinions founded, after due reflection, on experience. But they cannot be confirmed directly by experiment. Newton's first law of motion at once presents an insuperable difficulty in any such attempt. It is concerned with what would happen to a body on which no force acted, i.e. out of reach of the influence of any other body. Like other systems of physical principles, instead of verifying the principles themselves, we can verify only their consequences. We have faith in them because observation confirms what we infer from them.

When we say that Newton *explained* planetary motion we should notice that the word 'explain' is used in a limited scientific sense. Newton admitted his ignorance of *how* it is that bodies attract one another. 'The cause of gravity,' he said, 'is what I do not pretend to know.' What he *did* show was that the descent of a stone and the elliptical motion of a planet were phenomena of the same kind—predictable from the same set of hypotheses. By thus relating phenomena to one another, he made our description of the world more coherent. But it doesn't *explain* anything in any deeper metaphysical sense. In this, the new science differed in aim from the traditional metaphysics, with its emphasis on a priori fundamental explanations of causes. It was gradually realized that the aims of science, though limited and superficial, were attainable and useful.

Newton's discovery of Gravitation illustrates some of the

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features now recognized as common in scientific advance. First of all, he had acquired a deep, though not necessarily encyclopaedic, knowledge of previous science. The beginnings of the theory of gravitation lay in the insight of the association in Newton's alert mind of the moon's behaviour with that of the falling stone. He saw that the path of the moon may be bent away from a straight line into a curve around the earth for the same reason that the path of a flying stone is bent—because the earth attracts it. He immediately intuitively guessed a reasonable initial hypothesis, that the earth's pull extends to the moon, and obeys the inverse square law. This was tested by a calculation which only half confirmed it. But the shred of evidence was enough encouragement, and Newton then went on to a much more general hypothesis, that every particle of matter exerts a calculable attraction on every other. The discrepancy previously mentioned was found almost to disappear when a more accurate value for the earth's diameter became available. The final triumph of the theory—that of successful prediction—came spectacularly with the correct prediction of the return of Halley's comet, and from the prediction of a new and previously unobserved planet—now called Neptune—from a study of perturbations in the motion of the planet Uranus. By the end of the nineteenth century, after surviving every test for 200 years, Universal Gravitation commanded more general consent than any other scientific theory. The evidence for it seemed overpowering. Yet early in the twentieth century the whole basis of this theory had to be drastically modified. The ascription of absolute finality to a theory or law seems to have no place in science.

It must be added, of course, that this development did not simply make Newton's theories false. Newton's laws are still of tremendous value. What happened was that new developments showed them to be a particular case of a far more general theory. Under some conditions Newton's theories, though an approximation, are an extremely good approximation; under other conditions they are such a poor approximation as to be useless. But the Newtonian conception of space, as an

infinitely extended uniform Euclidian receptacle in which material bodies were immersed—this conception was irreparably shattered.

Let us now go back even behind the hypotheses of the Laws of Motion and of Universal Gravitation, to Newton's basic concepts. These basic concepts were space, time, and mass. Newton—and in this modern science follows him exactly—*abstracted* just those concepts which were sufficient for the purposes of his problem. He wanted to describe motion mathematically, and motion could be defined in terms of the concepts of space and time. Among the concepts that Aristotle used in describing motion were 'abhorrence' and 'natural desire'. That such notions were excluded by Newton in his mechanics does not imply that he thought these ideas devoid of meaning, or that he was not interested in them. He excluded them as unnecessary hypotheses to the problem of mechanics, and indeed encumbrances to advance in that field. This technique of abstraction is essential to scientific progress.

While Newton understood the nature and purpose of the theories he put forward, the rapid success of his own and later developments in physics, and of developments in biology, led many to an unbalanced appreciation of the scope, purpose, and implications of scientific truth, which was particularly common in the latter part of the nineteenth century. The chief feature of such unbalanced views was an apparent inability to realize that any abstraction from reality at all had been made in reaching scientific truth. If this central feature in scientific truth is overlooked, then of course the claim follows that science describes all reality; and anything which science cannot deal with by its process of abstraction can't be real. This rather reminds one of the objections raised by Francesco Sizzi to the discovery by Galileo with his telescope that Jupiter had four satellites. His opposition to this discovery was as follows:

' . . . the satellites are invisible to the naked eye, and therefore can have no influence on the earth, and therefore would be useless, and therefore do not exist.'

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While this unbalance is not impossible to find today, there is a radical revision going on, within the field of science itself, as to the nature of scientific truth.

Perhaps the chief cause of the radical revision of ideas on this subject has been developments in science itself. A few examples in physics may help to illustrate something of the changes that are taking place in views on the relation of physical theories to the world they describe. By the end of the nineteenth century the most common view of the nature of scientific theories was that they controlled events rather than described models on which events could be more fully understood; that they described the truth about all reality rather than an abstraction from it.

Around the turn of the nineteenth into the twentieth century came radical new developments in physics—the electrical theory of matter, relativity theory, quantum theory. Einstein and others developed a new theory in which the Newtonian assumptions of absolute time and absolute space were abandoned. In Einstein's theory, length, time, and mass are no longer invariable properties, but depend on the conditions under which they are 'observed'.

New experimental work showed that the atom, previously regarded as something like a very small infinitely elastic ball, was found neither solid nor simple. What was more serious, however, was that the attempt to predict the behaviour of sub-atomic particles by Newtonian mechanics completely failed. A new form of mechanics—quantum mechanics—in which such elementary particles could no longer be adequately regarded simply as definite 'things', had to be developed. It was also found that mass could be annihilated and reappear as a form of energy. Thus the analysis of ordinary matter was apparently leading to something very different in kind from the previous concepts of physics.

It became more and more evident that no sort of physical or geometrical picture of these phenomena was ultimately sufficient; and when no such picture exists there is obviously no possibility of identifying it with the 'real' nature of the phenomena.

It is not my purpose to try to give a popular exposition of modern physics, but I hope enough has been said to show that its development exposed the inadequacy for physics of the idea that physical theories give a direct description of reality.

What then are some of the present day ideas on the nature of scientific theories or scientific truth?

This is a difficult field in which ideas are still emerging. Scientific theories are today commonly regarded as in some way similar or related to a conceptual model, map, or analogue. There are several dangers in using a model. The obvious danger is to identify the model with the reality it is used to depict. For example, it was often said in the last century that gases were '*really*' made up of minute billiard-balls, and so on. In defiance of the hope of many post-Newtonian physicists, a scientific theory may operate with concepts that are purely mathematical in their nature. Though the universe of modern physics is one in which models of the sensory type often fail, this surely does not in the least imply that it is unreal. This would be to identify sensibility with reality—a position which has of course been adopted by some philosophers. A model or theory may be useful in its time and then be replaced by another of greater adequacy. However useful they may be, it appears clear that the relation between scientific theories and the world they describe is very much looser than that of a literal description. To say all this is not to deny that there is truth in a scientific theory. It is, I believe, to understand something of the kind of truth that it is.

Might we now allow ourselves a somewhat larger view on our subject of truth, and man's search for it? So far we have been trying to see something of the nature of scientific truth. I have illustrated this with a consideration of some developments in physics. We saw something of how real and vital progress in knowledge could be made by abstracting or separating out for our attention certain aspects of reality. A simple example illustrating this process of abstraction may help. Let us imagine that we are interested, from the point of view of

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mechanics, in the exhibition of an elephant in a hurry—slipping down a greasy river bank on his seat. Considering this as a mechanical problem, we first of all replace the elephant by an equivalent point mass located at the elephant's centre of gravity and a certain moment of inertia about that point. We replace the greasy bank by an inclined plane. The interaction between the two we treat by a coefficient of friction. Substituting his initial position and velocity in the equations of motion, and making some assumption about the behaviour of the elephant, we can predict the kinematics of the elephant's descent.

If we appreciate the importance of this process of abstraction to scientific progress, we are unlikely to identify the truth obtained in any scientific discipline with all reality. Confusion on this point has, I think, made credible for some a materialistic philosophy (or view of life).

Different sciences involve different levels of abstraction, and different principles of interpretation. For example organism is a principle of interpretation useful in biology, mechanism is useful in physics, and the subconscious mind in psychology. There is today general acknowledgement of the right of a particular discipline to develop and use its own principles of interpretation appropriate to its task; and it is no longer blindly assumed that the abstractions and interpretative principles appropriate to the *natural* sciences are the only ones that can be accepted as 'scientific'. A discipline is nowadays regarded as a 'science' whenever distinctive and valid principles of interpretation are developed. It is chiefly because some such approach to what is meant by a 'science' has been generally accepted, and to some extent because of the development of the disciplines themselves, that in this twentieth century we have witnessed the gradual but general recognition of the independence of the human sciences, and their right to qualify as sciences, without having first to make obeisance at the shrine of natural science. Thus, when nowadays we say psychology or history is a science, we do not mean that it is limited to the use of the abstractions and principles of interpretation employed by any one or all of the natural sciences.

It is true that it is a perplexing and absorbing question how knowledge is possible outside the sphere of the natural sciences, but this is not to deny it all status of truth. One of the reasons why, for example, historical inquiry was suspect by the natural sciences was because one's view of the nature and significance of historical events varies according to the perspective from which one looks at them—according to the point of view or scale of values used in assessing the event. From this, however, it does not follow that all perspectives are equally false, or that all perspectives are equally true or adequate.

What, we may well ask, is it that determines the point of view from which not only the historian but all of us look at things? Why is it that we believe some ideas to be false and others true? Can man, as the rationalist doctrine maintains, come to the knowledge of all truth by the untrammelled exercise of his power of reason? Or is *faith* necessary for reaching truth, and if so, what is the relation between faith and reason? Do we agree with the unconscious implication of the schoolboy who is recorded as saying in the opening sentence of an essay: 'The difference between Science and Religion is that Science is material and Religion immaterial.'?

In the face of such profound questions, one can but simply outline, in however inadequate a manner, something of what one has come to see as the truth about them.

Let us begin with one more consideration of scientific work which unfortunately is not widely appreciated. This is that the suppositions underlying our belief in science are much more extensive than is usually thought. As Professor Coulson has emphasized: 'Science without suppositions' is a hopelessly superficial description of our discipline. 'Think,' he says, 'for a moment of some of the attitudes of mind with which any scientist comes to his search: there is honesty, and integrity, and hope: there is enthusiasm! I am sure nobody has really done any research work and not experienced some element of passion. There is a singleness of mind; there is the stimulus of co-operation with other scientists of similar interests: there is patience; there is judgement—judgements

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of value as to what constitutes worthwhile research.' These suppositions underlie *all* scientific effort, though they are often not examined. What do they involve but a deep belief or faith in the ability to know truth?

It is also important to realize that there are very broad and prior categories, without which there could be no science, and yet which cannot be proved. An example of such an unprovable yet essential assumption or faith is that there is an order and constancy in Nature.

Yes, when we search the real roots of science we come to understand that it is based absolutely on *faith*, and that this faith is not formally different in quality from the faith we speak of in religion.

Because of the existence of what is called 'scientific humanism', it is of importance to ask whether or not a real philosophy of life can be achieved using scientific methods. The modern scientific humanists are seriously concerned about the well-being and progress of civilization, and they have for the most part recognized that it is necessary to establish the real existence of ethical and other values upon firm ground if civilization is not to perish. Typical of the scientific humanist outlook is that of Mr. C. H. Waddington who, dismissing belief in God by means of a psychological theory, sought to establish the validity of ethical values by what he regarded as 'scientific' means. Science, he explained, can show us what is the direction of evolution and also what is 'good', that is, what ethical principles and types of action will contribute towards the progress of society in this direction. Waddington's interesting argument appears to assume that the 'direction of evolution' of society is objectively good for the reason that goodness is the direction taken by the evolution of society—and therefore the argument may be criticized on logical grounds as telling us nothing at all. But for all that, it is an interesting and instructive illustration of the need of establishing the reality and importance of moral values, and uses the very category of evolution which has so often been used to try to prove the relativity of moral values. This is an illustration of what seems to be a general fact, that when a

broad category developed in any science is applied analogically outside the particular field of its origin, it can never be more than an analogy and cannot be validated by scientific method. And analogies, as we have seen, are capable of different interpretations.

It is probable that the cause of scientific humanism was the uncertainty which the secular humanist felt in everything except the scientific method. But a bare method does not itself provide a philosophy of life. What scientific humanists have done is to introduce into it an assumption, or act of faith. This faith which appears to underlie all forms of scientific humanism is a belief in 'progress', the opinion that the later stages of evolution are 'better' than the earlier. Hence, on this view, man can by his own efforts change not only his environment but also his own nature and perfect it. By following the new educational, psychological, and social techniques (whatever these may be) man can become his own saviour and set up the kingdom of man upon earth. While I believe this view does not take sufficiently seriously the fact of evil in the world and in human nature, just as Marxism in its dogmatically rigid form denies all that is good—what I would like to make clear is that this view depends for its validity on *faith*. I would also like to make a more general claim that the scientific method does not and cannot, without the introduction of a 'faith principle', which science does not itself provide or justify, attain to the status of a philosophy of life.

Despite this, Lord Morley is not a lonely voice when he said: 'The next great task of science is to create a religion for mankind.'

Modern philosophy is often regarded as having begun with the attempt by Descartes to remove all presuppositions which were not either self-evident or demonstrable by reason, and this has remained the goal of all forms of what is called *rationalism* since his day. With Marx, Freud, and the existential philosophers, the era of an at least self-confident rationalism appears to have come to an end. Though we may not agree with them in many matters, Marx and his followers

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have helped us to understand that man must and will believe something. They have also shown that man's reason is, like his will, prey to his own self-interested motives, which illustrates a fundamental truth of the biblical conception of man as 'fallen'—that we are infected in every part of our nature by self-centredness—which we yet still know to be wrong. According to the biblical religious myths of the Creation and Fall, man, though created in God's image, could not resist the temptation to gain for himself God's position and knowledge, and he rebelled against God's will. And though these myths use the metaphor of time—'in the beginning'—in human experience they are proving timelessly true.

On examination, it appears that *rationalism* too depends on an often concealed basic assumption or faith, which is nonetheless necessary to it. This faith of rationalism, which is also a faith of scientific humanism, is that human reason can grasp all truth and itself arrive at a true philosophy of the world and life. The basis of this faith is denied by the Christian doctrine that human reason is also 'fallen'.

Earlier we saw that even in the natural sciences there can be no knowledge independent of faith. We then briefly summarized a couple of important attempts to achieve knowledge adequate to provide a philosophy of life by which to live. In these attempts we have also found faith to be an essential foundation. I believe we will find that faith is essential for any kind of knowledge.

In conclusion, I will build on what I have already said and briefly state my own position on these questions as to how man comes to the knowledge of truth, a position which, as I understand it, is part of the Christian faith in which I believe.

It is this: man comes to the knowledge of the truth, not by the untrammelled exercise of his reasoning powers, but by accepting or being given the faith which enables him to use his reason aright; reason cannot work until it first makes an act of faith. Reason does not *precede* faith, but faith precedes reason. Our previous discussion will, I hope, help in some way towards understanding this bald statement of how knowledge is attained.

If reason cannot work until it first makes an act of faith, then it will not work correctly or apprehend further truth unless it makes the *right* act of faith, i.e. unless it enters into faith in the truth. And how is this possible for man?

Biblical and Christian tradition is that all truth is God's truth; it cannot be man's truth until in a very real sense God Himself brings the truth to men. This is not to deny the importance of man's co-operation, though man may often not see that it is co-operation. Recognition of truth upon man's part is due to the self-movement of God towards Mankind. The discovery of truth then, from physics to all that comes after physics, is seen by Christians as an outgoing of the grace of God. But it is admitted that this view is reached only in response to God's self-disclosure which Christians call revelation. Faith, created in us by what God has done, is not to be conceived as an addition to the knowledge we already possess, it is a *new seeing*; it is not a last resort which credulous men adopt when natural reason can take them no further; Christians believe it is the condition of the full operation of natural reason itself. Especially for anyone brought up on the assumptions of rationalism, I appreciate that this conception of the nature and function of Christian faith will be difficult to understand.

Of course I have not answered the question at all as to the basis and nature of the Christian faith. We have heard and will hear more about that in this series of lectures. All I should say here is that the Christian faith or religion is an historical faith, not a theistic philosophy. It is grounded upon historical facts—though it is admitted that the only historical facts are interpreted facts. The Christian faith is not free to invent a new history or non-historical object of belief, because the very character of Christian faith is defined by its acceptance of historical facts, as attested and interpreted by the prophetic and apostolic witness to which the Church today is heir. It is evoked by the proclamation of things which have happened altogether outside and apart from the feelings, wishes, or speculations of Christians.

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A Roman governor at a criminal trial over 1900 years ago asked the man who was being tried :

What is truth?

Christians believe that the central answer lies in the whole fact of the person, Jesus Christ, before him—his life, his work, his death, and his resurrection beyond death.

6: Controller of Physical Environment?

I PROPOSE to talk about Man considered as a controller of physical environment, whether it be man as an individual, or MAN in capital letters, regarded as mankind. I shall refer to this distinction later, but for myself, I always find it difficult to dissociate statements about the human race from implications about the individual man; and thence, by a simple extension of ideas, from implications about the most important member of the human race that I know, namely myself. Any offensive generalization about the human race, I find, reflects on me; any medal awarded to mankind in general I am prepared to wear myself; and for this (perhaps egocentric) reason, I believe this subject must be approached with some caution. It is, of course, warming and gratifying to think of Mankind as the controller of his inanimate surroundings, as this naturally encourages one to expand one's chest and quote

I am monarch of all I survey,
My right there is none to dispute,

forgetting that many a little strutting cockerel, crowing with self-importance on his farmyard dunghill, is expressing much the same idea. Evidently, before committing ourselves, it becomes necessary to discuss more fully the nature both of the physical environment and of the control referred to.

It happens that I am old enough to have a few of my roots in the Victorian era. When I went to school, I was brought up on books written in those days. My parents belonged to that age. And I distinctly remember, in the days before the First World War, one legacy of the Victorian age, namely the all-pervading atmosphere of optimism and high hopes. When we learned about Robert Stephenson and James Watt, and saw with our own eyes the very first electric trams running in the

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streets of London without horses, it all seemed to fall very naturally in line with what we were taught, and indeed what was received universally almost as an axiom. This was that the great inventors and scientists had now got their hands firmly on the rudder of progress, and that we should all live to see the world becoming happier and easier as mechanical contrivances and ingenious devices brought more and more wealth and leisure. It would be only a matter of time before increasing power over inanimate nature cleared away all difficulties. Nowadays it is not easy to convey how deeply this optimism and confidence in achievement went. It was not an official attitude, but an article of belief in all classes, no less among the working men, at a time when conditions for the labourer or skilled tradesman were exceptionally hard, than among the wealthy classes whose money came from railways, or chemical works, or breweries. No matter what the social environment, in the background of life in those days was a great hope. It looked as if the world were set fair on a journey to a glorious future. We seem to have lost some of this inspiration now. In many respects it would be a good thing to regain it. Some of the light from this now-faded vision can be recaptured from the following quotation from Macaulay's essay on Francis Bacon :

Ask a follower of Bacon what the new philosophy, as it was called in the time of Charles the Second, has effected for mankind, and his answer is ready; 'It has lengthened life; it has mitigated pain; it has extinguished diseases; it has increased the fertility of the soil; it has given new securities to the mariner; it has furnished new arms to the warrior; it has spanned great rivers and estuaries with bridges of form unknown to our fathers; it has guided the thunderbolt innocuously from heaven to earth; it has lighted up the night with the splendour of the day; it has extended the range of the human vision; it has multiplied the power of the human muscles; it has accelerated motion; it has annihilated distance; it has facilitated intercourse, correspondence, all friendly offices, all dispatch of business; it

has enabled man to descend to the depths of the sea, to soar into the air, to penetrate securely into the noxious recesses of the earth, to travel the land in cars which whirl along without horses, and ocean in ships which run at ten knots an hour against the wind. These are but a part of its fruits, and of its first-fruits. For it is a philosophy which never rests, which has never attained, which is never perfect. Its law is progress. A point which yesterday was invisible is its goal today, and will be its starting-post tomorrow.'

This passage might fairly be described as a trumpet blast. It is easy to imagine Macaulay's Victorian readers swelling with pride and self-satisfaction as they read it, and turning with a superior smile to congratulate each other on their technical and scientific achievements so justly celebrated by the author. No doubt they could foresee the happy world in store for their descendants as the list of wonderful inventions rapidly extended down the years.

In some respects they were right. It is perfectly true that technical achievement has been added to technical achievement in an ever widening river of success. Disease has been mastered to an extent unimagined a century ago; technical advances in genetics and biochemistry have revolutionized agricultural practice; radar has made the mariner's compass look old-fashioned; to Macaulay's bridges we can add vast hydro-electric schemes; the technique of illumination has made Macaulay's hyperbole about lighting the night with the splendour of the day very nearly a statement of fact; mechanization is rapidly removing the need of muscle and automation looks like removing the need for brain. Speeds have increased in all elements; we can go higher and deeper and further than anyone thought possible; every day sees a new rocket or satellite bursting into unexplored space. We have found sources of energy inconceivably more intense and of inexhaustible capacity. If Benjamin Franklin taught our ancestors with his lightning rod to guide the thunderbolt innocuously from heaven to earth, as Macaulay says, we are able to hire an earthquake and destroy an island. There is no

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doubt at all that in all measurable ways we of this generation wield infinitely more power over our physical environment. What is more, we are likely to acquire and to exercise more and more power in the future. The whole operation is accelerating. Two years ago I raised a somewhat incredulous titter by telling a first year class that I supposed that within their lifetime someone would reach the moon. If I were so ill-advised as to repeat this to the present first year class the remark would be greeted with yawns, as just one more of those dull truisms which old-fashioned professors are apt to spout.

We may therefore, I am certain, accept it as a fact that members of the human race can already control much of their environment, that they are learning to do so more and more. It is not merely an ideal, it is happening. In the background of our minds there are certainly little niggling doubts and provisos, but ignoring them, as it is the custom to do, let us state the account handsomely and congratulate our fellow men—and therefore ourselves—on magnificent technical achievements which have put into our hands unprecedented control over the forces of Nature and over the objects animate and inanimate which surround us. Let us rejoice that human mind and energy have achieved these things, and don't let us refrain from the full savour of these undreamed-of capabilities of our race. That we are capable—let us not be modest—of arriving at such mastery, is indeed the great revelation of modern times, and one to which our eyes might as well be wide open.

And now that we have shaken hands all round, the first comment it is necessary to make is that while we appear to have made a fair start, we have not got very far. We may be Aladdins, but we have as yet put only one foot into the enchanted cave. A very useful degree of control has been attained over some diseases, for example; and yet residents in the tropics are well aware that vast masses of suffering and disease are hardly touched at present. The aeroplane and motor-car have greatly facilitated some aspects of travel; and yet a traveller by road from Kampala to Mombasa (for example) will still wonder whether in East Africa in the twen-

tieth century we are very much nearer to taming the viciousness of roads than the Romans were in Europe two thousand years ago. The disturbing effects of climate and weather remain almost completely uncontrollable everywhere. Devastations from flood and wind still occur throughout the world. Even on this insignificant patch, this earth, we are very far from complete or effective control of our surroundings. If we choose to include in our thoughts the immensity of the surrounding universe, the scale of our actual achievements diminishes to the infinitesimal, and the magnitude of the future task can be expressed only in astronomical numbers. There still remains enough for this clever human race to do. In short, we are not gods yet. When we have harnessed the winds and tides and ocean currents; when we can master the radiations reaching us from outer space; when we have erected an effective wall against micro-organisms and disease, and have begun to conquer death itself, then we shall have got somewhere. Until then, let us refrain from emulating the cockerel on the garbage heap.

Having thus restored our minds to a proper state of humility, we may consider a second comment. Since so much has been achieved already, and since it is evident that great benefits do flow from increased control, then every possible measure should be adopted to achieve a greater mastery than we enjoy at present. More effort and organization should be put into technical education and scientific research with the deliberate aim of acquiring more power over our environment. But at this point we must face that central preoccupation of modern times, the atomic bomb. It is natural to object that in the atomic bomb the world was presented with an object lesson of the consequences of unbridled pursuit of technical proficiency, namely destruction on a scale hitherto unimagined. To some it will seem an impertinence to advocate more numerous and intense efforts in science and technology while this terrifying object stares us in the face. It cannot be said that the objection is unreasonable, even though it may not be valid, and even though a full and satisfying reply would lead us too far from our subject here. As a partial

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answer I may make the not entirely irrelevant remark that I am fairly well acquainted with the subject of electricity. I regard electricity as extremely useful and beneficial to the human race, and I strongly advocate the study of its properties and behaviour. At the same time, were I to be moved by an overwhelming impulse to apply the electric power available in this room to the purpose of electrocuting the whole audience, I do not think it would be beyond my ability to arrange. I know a doctor whose life is spent in the study and breeding of malaria and cholera germs. He holds in his hand the power to destroy populations more silently than the atomic bomb. It is unquestionably true that the acquisition of power over our environment gives us power both to heal and to destroy. This is not peculiar to the application of nuclear reactions, but in greater or less degree is true of all technical discoveries. It can hardly be denied that this raises a great moral problem; but I may point out what, in my opinion, has been our experience in the past, namely that the balance has been on the side of the angels. Some members of this audience are engaged in the education of children, and are thereby acquiring the technique of influencing and controlling the minds of the young. Would it be advocated that because thereby these persons are acquiring the power to distort the growing mind, or because we have seen such attempts at distortion actually being made in recent years, that all study of child behaviour should cease? The answer to this question is, I think, not in doubt, and is one applicable to all similar problems in other regions of knowledge.

If we place in the hands of a human being a new and efficient tool—a chisel, saw, hammer—we present him at one and the same time with the chance of making a better article, and of fracturing the skull of his neighbour. There is no way of avoiding this ambiguity, except by refusing to let him have the tool. In terms appropriate to our theme, we cannot escape the risk that someone will misuse the knowledge and power derived from scientific studies, unless we agree to stop scientific investigation altogether. This step has been advocated, indeed, more than half in earnest. But apart from its obvious

impracticability, such a measure would inevitably result, in time, in the race being handed back to the tender mercies of Nature—a name we frequently give to circumstances leading to famine, disease, cruel labour, misery, blood. In time the world population would be reduced to a fraction of its present size, and the remaining inhabitants would be deprived of the innumerable aids to a higher form of life which we enjoy today, and would tend to revert to the primitive and animal, a condition that cannot be called desirable. If, in contrast, we approve of modern civilization, believing it to be a flowering of human potentialities, we shall be consistent if we advocate with what ardour we can command, the intensification of all available means of mastering this subtle, depressing, and blood-thirsty Nature, 'red in tooth and claw', as has been said.

We may now go on to discuss how far it is the nature of man to strive for control of his surroundings, and we may begin by observing that the last three centuries have witnessed a remarkable acceleration in his attempts. An inquiry into this development may help the discussion.

Some cogent reflections on this subject are to be found in the late A. N. Whitehead's book *Science and the Modern World*, where the author distinguishes three varieties of people who have taken effective part in the advancement of science, namely the philosophers, the practical geniuses, and a select band of persons who possessed the qualities of the other two combined in one person. Whitehead quotes examples from ancient times, and shows that the last group includes the people who achieved the greatest technical and scientific advances of their day. A typical instance is Archimedes, to whose outstanding practical ability several accounts in ancient writings bear witness. Indeed, his contemporary reputation may well have been based on his design of catapults and military engines, rather than on his mastery of mathematics and his original contributions to natural philosophy. Today he is more celebrated for the latter, and we may remark that such an achievement as the well-known Archimedes' Principle at once reveals him as a thinker whose adherence to purely rationalist philosophy was tempered by

his clear recognition of the authority of facts. His practical familiarity with things as they are, and as they do in fact behave, enabled him to rise above the compulsion of current philosophy and its assertion that a body must strive to reach the earth's centre, and to incorporate into his own philosophy a new principle based on observation. This is a clear example of what we now call the scientific attitude. It is the mental attitude of Galileo, Newton, Einstein.

Now in ancient times, this attitude was not characteristic of the philosophers, or of the pure rationalists to whom the philosophers were akin. Neither does it seem to have been possessed by the early practical geniuses; the anonymous discoverer of fire, the equally unknown inventor of the wheel, for instance. We have no evidence of any attempt to fit such discoveries into a system of thought, a philosophy. Nevertheless, every now and then, history has thrown up an individual to whom the scientific spirit has been second nature, and it has been on these occasions that great discoveries and advances have been made. That, at any rate, was the pattern before the sixteenth century, and the rate of progress was very unimpressive. The work of the individuals like Archimedes was not always acceptable to contemporaries. It was frequently smothered in the spread of rationalist philosophy. It was only after the passing of the Middle Ages in Europe—a highly rationalistic period—that a great change can be traced.

Now it is the character of that change that interests us here, not its origin, important though that is, no doubt. And this character consisted in the general acceptance by intelligent people of the marriage of rational philosophy and accumulation of fact, which we have chosen to call the scientific attitude. This was one aspect of a great renewal of awareness which was shewn in other directions also. We have to omit the highly interesting historical discussion, and pause only to note that whereas until that time the scientific attitude had been held by a few individuals of powerful personality, frequently in the teeth of orthodox philosophy and religious dogma, after this time it was accepted as an attitude appropri-

ate to all educated persons. Now it is easy to see the effect of this change on the climate of opinion. The old analogy holds. The gifted, original, scientific individual can be likened to a sower casting seed in the old-fashioned way. If the soil were not right, the seed was wasted. But when the soil was already prepared, every seed had its chance and the crop multiplied. Where, in former times, there were the select few choice minds which absorbed the new ideas, now there developed rapidly in Europe whole classes of wealthy and educated persons who were ready to receive them. In modern jargon, conditions became ripe for the start of a chain reaction of scientific ideas. Nowadays, while it is far from correct to say that the scientific attitude is understood and cultivated universally, it is the respectable thing in all ranks of literate society to presuppose that attitude.

One new and potent factor has therefore emerged in recent times; what one might call the communal factor. The mass-attitude to science and technology has become favourable. If you like, the human race has assimilated a new idea, that of the acquisition of knowledge and control by the scientific method. Nowadays we have not to think only of the psychology of the individual scientist, but also of the complexities of mass psychology. It would be extremely rash of me to attempt to ramble in that jungle, but I have sometimes wondered whether this new psychological factor has had anything to do with the curious fact, established on several occasions during the last few centuries, of the simultaneous independent discovery of the same thing, in different parts of the world. But however that may be, it does appear that in some degree we have passed on from the era of the solitary individual to the period of communal participation in scientific progress. We are in the process, as it were, of passing it over from man to mankind.

Perhaps we can see how important a matter this is by asking ourselves now what specific steps ought to be adopted in order to promote advance in our control over Nature. No doubt in the first place we would put improvements in education. This is the obvious way of fertilizing the intellectual

soil—to reorganize school and university education in such a way as to elicit the mental attitude we have called scientific, to adjust the curricula and methods of higher education in such a way as to give those who desire it better opportunities of grasping the nature of results already achieved and of the methods already found successful, to inculcate the research attitude. All this clearly ought to be done, and opportunities for people to take advantage of education ought to be multiplied. This is particularly true, of course, in East Africa, which in spite of very considerable advances, still lags far behind. How far it lags behind we see when we compare it with the state of education in a country like England. But England itself lags behind. In 1956, when a large group of scientists and engineers visited the Soviet Union, they were able to report that there the proportion of the population enjoying the benefits of higher education was three times the proportion in England. So there is an enormous leeway to make up here.

Whatever may be our view on the manner in which educational reform ought to be carried out, there is one gaunt spectre which invariably bars the way. Its name is Money. No considerable advance in education can be made without it. No intensification of research can be effective if it is starved of funds. Nowadays, money for these things comes primarily from governments, with some contribution from wealthy organizations of a commercial character. Governments for the most part are themselves governed in the long run by public opinion. Industrial organizations will generally give only to popular projects. It is therefore particularly fortunate that science has become a communal interest independent of political parties. It may indeed be true that the urgent need to press forward in technical matters is less appreciated by the politicians than it is by the mass of educated voters. It is likely that in few classes of society is scientific knowledge so thinly spread as it is among the politicians. This is a serious reflection, for as a result the governments of most countries in the world are in the hands of people very scantily equipped to appreciate the vital importance of scientific advance. Nevertheless, into their hands we place power,

especially power to distribute money. No wonder that progress is slower than it should be.

However, the problems of governments are not so simple as a plain choice or rejection of a course of action. We may take the situation in East Africa as an example. In these Territories, poor, needing new resources on all hands, still struggling with forces of Nature which in more fortunate places are under control, we may claim that especially intense efforts ought to be made to build up a large corps of persons trained to apply their knowledge to the exploitation of such resources as exist, and to find new ones. And we may feel that the effort being made falls far short of this ideal. Nevertheless, it must be recognized that much is being done in some directions. Much money is being spent in agricultural research, for instance, by the governments, the East African High Commission, the Empire Cotton Growing Corporation, and the tea industry. It may be said, perhaps, that this is not enough; that even more money ought to be devoted to this work; that co-ordination of all these more or less independent efforts is overdue; that in the many other directions where funds are needed for training and research, very little is being done. All this may well be true, and it is part of our thesis that stimulus should be applied at all these points. But on the other hand, imagine yourselves for the moment to be high government officials, faced with the annual or quinquennial share-out. You will know that a certain quantity of cash is available; and you will have before you some hundreds of services and projects, all competing for the funds. It is your responsibility to arrive at a decision on relative importance, and which among them is to receive priority. If you are not convinced of the need to strive for mastery over our environment, or if, being a politician, you are not even aware of any world-wide movement in that direction, you will assign no more than a token share to it. But if, on the other hand, you are convinced, or if you have been made to see that public opinion is developing in that direction, you will give a much larger proportion of the funds available—and this, let us not forget, deliberately at the expense of other worthy projects.

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If this example contains the truth, then it will appear that our present hope, both in East Africa and elsewhere, must repose in the dissemination among the people of the idea of scientific control over our environment, in the communal urge to technical advance. In a democratic system, governments can usually be relied on, in the last resort, to follow public demand.

The two prime requirements for the more rapid acquisition of control appear then to be educational reform, and attraction of funds, and of these the educational requirement is the more fundamental. We may ask, what kind of changes in our educational organization would be called for? To this question, one answer has already been given in our time, in the enormous developments in the Soviet Union. Their organization, it is reported by the distinguished visitors of 1956, is based on the regimentation of all taking part. No criticism of the system is permitted. Criticism of individuals is allowed, but not of the pattern of the organization. Students are insulated from all contact with the outside world. Their lives are controlled, and everything is laid on 'from the cradle to the grave'. If they do not approve of the examination system (where the pass mark is 80 per cent.) they must not say so or they are consigned to the factories, or else their allowance is stopped. Professors and teachers are appointed for a limited period, and their continuance in office is contingent on good reports. By clamping down this rigid discipline on their 220,000 schools, thirty-three universities and 800 technical colleges, the Russians have made spectacular progress. In my opinion, it has been bought at too high a price, namely at the expense of at least partial suppression of human individuality and of the freedom of the human spirit. The process of limiting the development of one aspect of individuality, in order, presumably, to concentrate all energies into one other line of development is reminiscent of one of H. G. Wells' stories, where, in order to produce beings with massive brains and superhuman intellectual development, children were brought up with their bodies and limbs confined in a small vessel allowing very little growth. If we are to profit by the Soviet

example, it is certainly not this aspect of it which deserves imitation. Rather it is the other side of it; the vision, the concentration, the sacrifice of other amenities over a long period of years, the willingness of government to pour into education a far larger proportion of its resources than we are accustomed to—the kind of missionary passion to achieve general standards of intellectual attainment greater than the world has attained heretofore. Given a powerful injection of this spirit into our own community, the problem of educational organization will no doubt solve itself along lines which preserve the high value which we have traditionally placed on the preservation of individual personality.

What then are we to conclude from this discussion? In brief the answer is that Man does control his environment to a limited degree now; that he will control it to a much more effective degree in the future; that every effort needs to be made to acquire more and firmer control, even in the face of the inescapable risk of a wrong and evil misapplication of this power. Finally, that one immediate need is the reform and wider dissemination of education, and that in any reorganization which we may adopt, it is essential to beware of destroying individuality.

7: Creative Spirit? (The Poet)

AN eminent member of this University College remarked to me recently that this series of lectures on Monday nights is really like a series of inaugural lectures. You may rest assured that your lecturer tonight will never be called upon to deliver such an awe-inspiring address as an inaugural lecture. Nevertheless, if we may but mention the word, I regard an inaugural lecture as an 'act of faith' in which the speaker says aloud what he thinks about his own subject. And, whether or no we think of inaugural lectures, it is no mean achievement that the Professor of Education has persuaded eight academic gentlemen this term and eight academic gentlemen next term to say what they think in public—audibly, no doubt, and with conviction. This is a rare and moving spectacle not frequently to be met with in our older universities!

The mention of these mellow retreats of scholarship has, however, caused a stirring in my memory, and I recall the shock sustained by many of the learned pedants at Cambridge when Professor A. E. Housman, a severe Latinist and an immortal poet, emerged from the dark confinement of his room to deliver, not his own inaugural lecture, but the Leslie Stephen Lecture of 1933 on *The Name and Nature of Poetry*. In this remarkable oration he declared that poetry seemed to him to be more physical than intellectual, and that when, as with 'Eliphaz the Temanite', the wise friend of the prophet Job, "A spirit passed before my face: the hair of my flesh stood up". Professor Housman continues, to the shocked surprise of his audience, 'Experience has taught me, when I am shaving of a morning, to keep watch over my thoughts, because, if a line of poetry strays into my memory, my skin bristles so that the razor ceases to act. This particular symptom is accompanied by a shiver down the spine; there is an-

other which consists in a constriction of the throat and a precipitation of water to the eyes; and there is a third which I can only describe by borrowing a phrase from one of Keats' last letters, where he says, speaking of Fanny Brawne, "everything that reminds me of her goes through me like a spear". And he concludes this passage quite bluntly by saying, 'The seat of this sensation is the pit of the stomach.'

Poetry is not prim; it is not found in etiquette books; it is too fond of plain speaking to sit very happily in respectable houses! And poets are sensitive people who suffer both the fullness and the dryness of the varied visitations of the creative spirit.

Housman does not attempt to analyse further the workings of the poetic Muse, or let us say, if we are feeling cross with it, 'this knavish Sprite', this imp, this daemon—this fiery visitor. It is our subject tonight—the creative spirit. And we have to ask ourselves if man does in fact *create* anything? And how is poetry written? And why does Shakespeare write with such utter assurance :

Not marble nor the gilded monuments
Of Princes, shall outlive my powerful rhyme. . . .

And why does man take poems (metaphorically, no doubt) to desert islands, or go to desert islands (again metaphorically, perhaps) to make poems? Very broadly, we can say, because he is seized by the impulse to do so. The whole of him, body and soul, is lit with a desire to say what he thinks and feels about the great themes that trouble and delight the mind of man.

'I have two or three times in my life composed from the wish rather than the impulse, but I never succeeded to any purpose,' says Housman, again, in his lecture quoting the Scottish poet, Robert Burns, with entire agreement.

The impulse is caused by the spirit troubling the waters, and true poetry is always—as the psalmist says—'out of the depths', and the spirit, whether we think of its action as being a spear, or a consuming fire, is quite simply, the only power that can touch the depths of a man's nature at a deep enough level to enable him to write poetry.

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Poetry is not a pretty little neat accomplishment: no, we are speaking of a dangerous element. We are speaking of a *mystery*, and by this I do *not* mean anything so puny as a problem—something to which there is, by implication, a nicely rounded solution. We are speaking of a mystery which is something we know exists, but about which we can never know everything.

In verses where the spirit has *not* troubled the waters flatness abounds. Flexible rhythm, variety, original observation, true feeling—in short, the virtue of life, is totally absent, and no creative act has taken place. The poet, as Robert Burns explains, has composed 'for the wish'.

It would be as well, and not a little amusing, to listen to the hideous, jerking banalities of lifeless verse, to train the ear to recognize the spurious before considering the mystery of poetic creation—as we will call it for the time being—at its deeper levels. This 'wished for' verse is blind and over-serious, and consequently funny to the outsider. And the great poets—uninspired—stand beside the beginner in this, for one dead verse is as good, or as bad, as another. Thus Tennyson, writing of the great railway conquest of space (nowadays the term is 'Annihilation of space') produces these preposterous lines:

Dash back that ocean with a pier,
Strow yonder mountain flat,
A Railway there, a tunnel here,
Mix me this zone with that!

Sometimes the belief that the subject of a poem should suffer the external pressure of an over-riding purpose, that it should, for instance, 'instruct in moral virtue', is so strong that the truth in the subject is utterly twisted. It is hard to believe that anyone, in describing what must have been a terrible scene of death, could, in all earnestness, write the following lines:

Entrapt inside a submarine,
With death approaching on the scene,
The crew compose their minds with dice,
More for the pleasure than the vice.

The deliberateness of 'compose their minds' can scarcely be believed, but a virtuous Congressman in the United States succeeded in writing this in his 'Elegy on the Loss of U.S. Submarine S.4'.

W. H. Auden, sometime Professor of Poetry at Oxford, has reminded us—if we need telling—in his inaugural lecture entitled *Making, Knowing, Judging* that the most frequent cause for banalities in poetry, for flatness, is the sharp fall between the sublime and the ridiculous. The moon is indeed a sublime subject. Thus thinks a simple rhymer who shall be nameless :

O moon, when I gaze on thy beautiful face,
Careering along through the boundaries of space,
The thought has often come into my mind
If I ever shall see thy glorious behind . . .

The mere thought of the sublime may have a damaging effect upon the critical sense, but this, and equally serious and unsuccessful attempts to soar, prompt me to ask how a poet prepares to meet his subject, and what part the critical faculty plays in the act of composition.

Here again Professor Housman gives a useful hint. 'I think,' he says, 'that the production of poetry, in its first stage, is less an active than a passive and involuntary process; and if I were obliged, not to define poetry, but to name the class of things to which it belongs, I should call it . . . a morbid secretion, like the pearl in the oyster.'

This is strongly biological, even chemical, is pleasingly rooted in organic functions. Soon I hope to show how splendidly biological prophecy can be, but before doing so I would beg you to consider what we mean when we say that man creates. He does not, like God, create from nothing. He meets a subject already there and transforms it. In very simple terms 'he makes a thing', and we have to remember that the word 'poet' means 'maker', and that the 'thing' he makes is a living verbal structure. In the process of making he has met something already existing—he has renewed it in words,

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bringing to it a different but related life to that which it had already. The creative act, then, we have been rather blandly thinking about, is more nearly a transforming act, a sort of transfiguration, in which the thing seen is lit with visionary power, and the man seeing is made one by and in the act of making. Thus, in English we have the word seer—a see-er—who both sees and sees *in* to a situation. It sounds complicated to describe, and if you ask a poet 'what happens' he may be afraid of thinking too hard about the experience of making a poem, lest he should lose the capacity to make another. It is like being in love—mere thought makes nothing. A good poem is a birth drawn out of the whole personality, beginning in the deepest possible desire to know and love the real. And when a poet meets his subject he can exclaim in very truth 'this is what I've been waiting for'.

In going beyond what Housman has called the passive state of the poet I find myself in another dimension—one that is frequented by all contemplative people—and I would prefer to speak of the poet as a 'man with the gift of silence'. The prosaic but completely truthful line of Francis Thompson,

Nothing so active is as that which least seems so . . .

describes the hidden power of life in Nature, and it also describes the activity of the poet as seen from the outside. I do not wish to imply that the poet pursues his way through life 'dumb as a stoon', the condition deplored in the *Canterbury Pilgrims* by Chaucer's volatile Host. I merely wish to say that a poet is a man with silence in his heart, and that silence is the only state of mind in which intense poetic concentration on a subject can take place.

The poet is 'attentive', that is, watchful—sensitively aware of life around him. He does not go brashly forth in search of a subject to devour, for if the genuine act of making is to take place, he must surrender himself to the subject: it must be allowed to devour him. This act of giving oneself is difficult to achieve: it is an act of faith in the sincerity of one's own purpose: 'it happens' to the dedicated poet. If we may again

call on Housman—this time in frivolous mood—we shall see exactly what happens :

The Grizzly Bear is huge and wild;
He has devoured the infant child.
The infant child is not aware
He has been eaten by the bear. . . .

The reason why so many people do not even begin to be poets is because they put up so many barriers against experience. It is interesting to note that both Housman and T. S. Eliot, and there are others, confess that they compose best when recovering from an illness—that is, when their normal conscious resistances are lowered. And Housman's famous line,

Malt does more than Milton can
To justify God's ways to man . . .

can best be understood by remembering a remark made by him that he normally composed best in the afternoon following a pint of beer for lunch! The Muse, a much maligned though much wooed figure among poets, has to be waited for.

He who bends to himself a joy
Does the winged life destroy;
But he who kisses the joy as it flies
Lives in eternity's sunrise. . . .

Thus does William Blake tell of the waiting and the delight of being, as we say, 'caught up' in the joy of his subject. The poet must be as a child, but not a dull, clumsy, turbulent, selfish child who deserves to be eaten by a real and grizzly bear, but a child who can achieve, in the words of T. S. Eliot at the end of *The Four Quartets*,

A condition of complete simplicity
(Costing not less than everything)

This is the beginning of his discipline and it costs 'not less than everything'. These are quiet and essential words which, in no sense convey the flashing immediacy of poetic insight.

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'Poetry', writes Shelley, 'redeems from decay the visitations of the divinity of man . . .' For every good poem written is an act of creative redemption, it is a thing of truth, is a presence, a joy for ever. The poet is one who, like a primitive man, makes no distinction between matter and spirit. Henri Frankfort writes in the Pelican book *Before Philosophy*: 'The world appears to primitive man neither inanimate nor empty but redundant with life; and life has individuality, in man and beast and plant, and in every phenomenon which confronts man—the thunderclap, the sudden shadow, the eerie and unknown clearing in the wood, the stone which suddenly hurts him when he stumbles while on a hunting trip. Any phenomenon may at any time face him, not as "It", but as "Thou". In this confrontation "Thou" reveals its individuality, its qualities, its will. "Thou" is not contemplated with intellectual detachment; it is experienced as life confronting life, involving every faculty of man in a reciprocal relationship. Thoughts no less than acts and feelings are subordinated to this experience.'

To meet a thing as an 'it' and not as a 'thou' is to meet it impersonally, it is to count the trees and be indifferent to their scent and beauty. But to meet, life to life, and then to 'utter' words is to give substantial meaning to the meeting, for words are *things* in the mouth of the speaker and arise from the excited silence within him. The great medieval thinker Duns Scotus brilliantly describes the two ways of knowing: 'one, of the essence, abstracting from whether it exists or not; the other—which is called insight—of something existing as it exists (*visio existentis ut existens*).' Insight, then, or intuitive knowing—the flashing immediacy of poetic insight—puts one in direct touch with what is real but indefinable, with 'something existing as it exists'—it does not dissect what it sees, putting it into categories. This is the way of the primitive knowing of the poet, and it lies within the operation of intuition and sensation. It is this kind of perception, the seeing life in all its variety as a series of individual wholes, that gives to the diction of certain poets the sense that words contain actual things, and that these things have leaped into the line

in their original simplicity. We speak of the concreteness of words :

The cook y-scalded, for al his longe ladel . . .

You secret, black and midnight hags . . .

Wiry and white fiery whirlwind, swivelled snow . . .

There is, in the words of Shelley in his essay *On Love*, 'a secret correspondence' between our heart and created Nature, and the meeting between them, he writes, takes place 'in solitude, or in that deserted state when we are surrounded with human beings and yet they sympathise not with us'.

I have said that the poet is a man with the gift of silence, and I want to try to explain a little further what I mean by this, and how it is that words which are, as it were, the 'living cells' of poetry, arise out of silence. If I say that reality in the created world is ineffable, I mean that it is a mystery, the knowledge of which can only be fully contained in the mind of the Creator, and only partially held by man. I mean also that every particular object (and it is, as we have seen, the particular, the individual thing, that sets a poet working) has a deeper fund of reality than is externally apparent. Scientifically, mathematically, biologically, photographically, pictorially, and verbally we seek to answer the question 'what is the nature of (say) a tree', but our knowledge remains partial. We proceed confidently, perhaps foolishly, but with humility, trying to say the last word about a tree. And I am reminded, at this point, of the Chinese proverb: 'A fool who knows he is a fool will not be a big fool.'

The poet then, using words in suffering and joy to express the ineffable, can meet this hidden fund of reality only in silence. I quote now from Max Picard the Swiss poet: 'With his silence, man comes into relationship with the reality in the object which is there before ever language gives it a name. Silence is his tribute of honour to the object. This hidden fund of reality can never be wholly taken up into language'—(we all know what it is to be lost for words). And Max Picard continues: 'Through this literally unspeakable fund of reality man is brought into relationship with the original

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state of things before the advent of language and that is important. Furthermore this hidden fund of reality is a sign that things are not created and not combined by man himself. If things were due to man's creation, he would know them absolutely and be able to contain them absolutely in language.'

He would be able to say the last word about a tree, whereas there cannot be a single poet who has ever lived, who has not acknowledged as new and acceptable to him, interpretations of his own poetry by his readers. The poet, then, does not even fully know his own poetry and we must return to the old theological tenet that man but participates in creation—he does not create from nothing: he does not create alone.

Like the infant child he may not be aware at the time what has hit him, and it will only be in reflection that he will be able to describe the movement towards wholeness that takes place inside him. Poetry is born in what the French philosopher Jacques Maritain calls, in a significant phrase, 'the inner ordeal of creative freedom'. Freedom, because all the faculties in a man—the heart, the head, the imagination and even, in sympathy, the muscles—have closed in unity upon the subject of a poem. In this act a man is unified, in the joy of making, concentrated, living outside of time. 'I live under an everlasting restraint,' writes John Keats, 'never relieved except when I am composing.' And you will know that a poem begins in the particular and broadens into the truly basic human experiences of love and death, and beauty and heroism, and anger, and jealousy, hate and pride, pain; innocence; conflict; terror; pathos and pity; faith, laughter, cruelty; glory; envy; shame—and the ways of God to man. These are subjects with immense penetrative power and the poet must needs suffer himself to be open to them. To be thus 'open' is the beginning of faithfulness in meeting his subject—it is the beginning, if you prefer a simpler term, of poetic sincerity. And the knowledge that ensues from the meeting is love-knowledge. It is not directed just towards any subject indiscriminately, but operates as the habit of love in the poet operates towards the outside world. Thus a poet will love one kind of subject—will feel drawn towards it—rather than

another, just as a man in all sincerity will feel drawn to one kind of girl rather than another. 'For love,' in the words of Thomas Aquinas, 'may be said to discern, by causing discernment in the reason.' And by love I must emphasize that I do not mean only romantic passion. This is by no means to be left out, but there is much besides in love-knowledge. There is a tang in it, a tenacity, a flexibility, a hardness, a relation with reality stronger than the bleakest abstraction.

In one of Mozart's letters he describes how he feels the subject 'enlarge itself within him'. The same is true of a poem, for the offering made is a 'birth'—'costing not less than everything', made by the whole personality, and making—in the act itself—the person of the poet whole.

It is, in the truest sense, an intellectual operation where, by 'intellectual', is meant the unified movement in a man of his powers of feeling and thinking. In Hebrew, and therefore in Biblical usage, the 'heart' is thought of as the seat of the mind and the will. 'Blessed are the pure in heart' therefore does not mean merely, as some romantics might lead one to think, blessed are those with fine feelings and fine sensations, and, by implication, perhaps, cursed are the rationalists, but it means, blessed are they who seek sincerely for truth. The poet indeed has no quarrel with the rationalist if he will truly *be* a rationalist and not a grammarian turned philosopher. It is roughly within the last 150 years that a division has been thought to have been driven into the personality between the heart and the head. Perhaps Wordsworth's description of poetry as being 'the spontaneous overflow of powerful feelings' has tended, by what it leaves out, to perpetuate this division. Whatever the merits of the case may be, this division, although it does not begin with the romantic movement, is widened by it, but Abraham Cowley's poem written in about 1650 addressed to Mr. Hobbes, author of *Leviathan*, is characteristic of the attitude.

Vast bodies of philosophy
I oft have seen and read,
But all are bodies dead. . . .

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There is probably no poet in whom the powers of feeling and thought are more highly developed than in Dante, and no poet in whom they worked more perfectly in unity. Yet some romantic criticism, projecting its own divided state back into the supposedly dark and very cloudy thirteenth century, has tried to show that Dante's love for philosophy killed the love in his heart for Beatrice, whereas the truth was quite the reverse. It was indeed because he still loved Beatrice passionately, even after her death, that he turned to philosophy to console himself. In the *Convivio* he describes how the mere thought of his love could carry him off into an ecstasy. His attraction to philosophy was a well chosen remedy which helped him greatly, and it would be well to savour his definition of philosophy as 'an amorous association with wisdom'.

Now I could be proved not only a fool but a big fool if I were to say that someone like Coleridge, who, in theory, emphasizes the importance of the creative imagination even perhaps to the point of isolating it from the other faculties, could not write great poetry. For, whether a poet knows it or not, great poetry is written with the whole personality—including the reason—although the several faculties are unlikely to operate in nice neat equal proportions. Indeed there is a tender and haunting little Chinese story that describes what might happen if the imagination were to operate without any corrective.

The philosopher Chuang Tzu imagined in a dream that he was a butterfly, and when he woke up he said he did not know whether he was Chuang Tzu who had dreamed he was a butterfly, or a butterfly now dreaming it was Chuang Tzu.

We have said that poetry comes out of the depths, and in Professor Lowes's remarkable book, *The Road to Xanadu*, we are able to follow hundreds of the thought processes and the associations in the mind of Coleridge when he was composing the two poems *Xanadu* and *The Ancient Mariner*. 'The depths,' he writes, 'are peopled to start out with (and this is fundamental) by conscious intellectual activity, keyed, it may

be, as in Coleridge's intense and exigent reading, to the highest pitch.' Now the spirit stirs the waters of these depths. In the words of Goethe to his friend Eckermann this daemon which we first called 'this fiery visitor' is 'that inscrutable power through which without our will, our winged thoughts, our perceptions, stand unannounced before us, like veritable children of God and cry out, "Here we are".'

But Goethe insists that the daemonic is not the only factor in creation. 'In such matters,' he continues, 'it is much as in the game the French call *Codille*, in which the fall of the dice is to a large degree decisive, but in which it is left to the skill of the player to meet the situation thus created.' Now where Goethe speaks of skill Dryden speaks of judgement. In his preface to his play, *The Rival Ladies*, addressed to the Earl of Orrery, he writes both courteously and revealingly about its making. 'This worthless Present was designed for you long before it was a play, when it was only a confus'd Mass of Thoughts, tumbling over one another in the dark: When Fancy was yet in its first work, moving the sleeping images of things towards the light, there to be distinguished, and then either chosen or rejected by the Judgement.'

For Dryden the Fancy or the Imagination is thought of as a preserver and a presenter of images. Wordsworth and Coleridge are however much concerned to distinguish the character and operations of the Imagination from the Fancy. In describing its character Coleridge uses the word of German derivation, 'esemplastic', which is the power that draws all things to one and gives it substance. For him the reason is a Censor, not necessarily an enemy, but highly suspect and likely to turn into a critic. In *Anima Poetae* he speaks unforgettably of the 'streamy nature of association, which thinking curbs and rudders' and, again in the same book, of 'the streamy nature of the association faculty' which is curbed and ruddered by the disposing imagination. In adding the disposing power of the imagination he brings the part thought of previously as being done by the 'judgement' within the activity of the imagination. In fact what he does is to bring image and reason into a luminous and immediate nearness.

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To write poetry merely by 'free association'—to use a term from Freudian Psychology—is to produce the isolated impressions known as free verse that found their way into print between the two wars.

Now, I said earlier that a poem is a 'living verbal structure', and, in the making of it, the reason and the moral sense work both constructively and critically. Habits of composition in poetry-making and in music-making vary enormously. Perhaps Ben Jonson was correct in saying that Shakespeare never blotted a line?—by comparison the original score of one of Beethoven's Sonatas contains at one point twenty-seven corrections of one chord pasted one on top of the other, and the twenty-seventh is the same as the first.

May we for a moment, then, return to consider again the first act of perception of the poet? He has what we have called an insight of his subject, and I want to try to show that an insight is itself a structure built in excitement round a point of significance. In painting this corresponds in part to Clive Bell's theory of 'significant form'. If you say in simple speech, with relief: 'At last I see the point of this or that question', you, in fact, mean that you have seen the central thing about the question, which, in effect, puts everything else in the question into perspective and gives meaning to the *whole*. And so, when the great Jewish thinker Martin Buber says, in his poem, 'I and Thou': 'Creation reveals, in meeting, its essential nature as form', he is speaking of the intellectual grip that man—in this instance, the poet—has on created being. The future of the poem will depend entirely upon his point of view—i.e. that which 'strikes' him (note the word) most significantly about the object observed. In this Martin Buber speaks of the 'flash and counter-flash' of meeting.

We have already spoken of the 'inner ordeal of creative freedom' and have tried to show that the making of a poem is like a birth which is drawn urgently out of the biological and spiritual depths of the poet. I want now to say that the poetry arising most directly from the 'primitive perception'—and I do not use the word primitive with any trace of derogatory meaning—is the poetry of utterance. Listen for a moment to

the 'inner ordeal' of the prophet Jeremiah when disaster has struck his people and the spirit has visited him :

My bowels, my bowels! I am in anguish.
O the walls of my heart!
My heart is in tumult
I can not keep silence—

And then the factual cause of his disturbance :

Now I hear the sound of a trumpet,
The alarm of war.
Shock upon shock has come,
The whole land is shattered. . . .

And the judgement of reason for it all :

For my people is foolish.
They have not known me.
They are sottish children. . . .

And finally is the application to the world of fact : it is

The daughter of Sion that bewaileth herself,
That spreadeth her hands, saying
Woe is me now!
For my soul is wearied because of murderers.

I have said that poetry does not sit daintily in respectable houses, and, of all kinds of poetry, the poetry of utterance having a power so direct, compulsive and uncheckable is the least domesticated. Here the transference from experience to words is immediate, the meaning in the words, writes Gerard Manley Hopkins, should 'explode upon the sense', and, if we have so far thought more of the ordeal of making, we have to realize that the freedom in the making, 'the joy', is found in the *release* that comes with the discovery of exactly the right movement of words—of finding the 'thing in words' that is the exact equivalent of an experience. This sense of release brings to the poet the vision for which he craves—a point of view in which reality is synonymous with self-realization.

We have said that poems begin with the particular event—

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sometimes, as in the poetry of utterance, that event has an effect so powerful that it commands completely the personality of the poet, to the exclusion, perhaps, even of related memories, and 'the store of associative images' is not touched off. More frequently a poem is the result of a meeting of past events with the present, and every sense is called upon to fill the chosen words with related meaning. A poet, then, is not merely a poet when he happens to be writing a poem, he is a poet for every attentive minute of his life, and most of his time is spent in gathering material which he may or may not use.

In *Stephen Hero* James Joyce describes an 'insight', or as he called it, an 'epiphany', the significance of which most of us might have missed. Stephen, a young poet, is walking through Eccles Street, Dublin. 'A young lady was standing on the steps of one of those brown brick houses which seem the incarnation of Irish paralysis. A young gentleman was leaning on some rusty railings (nearby). Stephen as he passed on his quest heard the following fragment of colloquy out of which he received an impression keen enough to afflict his sensitiveness very sincerely.

The Young Lady: (*drawling discreetly*) . . . O, yes . . .

I was . . . at the . . . cha . . . pel . . .

The Young Gentleman: (*inaudibly*) I . . . (*again inaudibly*)

. . . I . . .

The Young Lady: (*softly*) . . . O . . . but you're . . . ve . . .

ry . . . wick . . . ed.

This triviality made him think of collecting many such moments in a book of epiphanies. By an epiphany he meant a sudden spiritual manifestation, whether in the vulgarity of speech or gesture, or in a memorable phase of the mind itself. He believed that it was for the man of letters to record these epiphanies with extreme care, seeing that they themselves are the most delicate and evanescent of moments.'

I do not want to make too much of this example—James Joyce calls it a triviality. What I am anxious to stress, however, is that the power of a poet to see and feel intensely is not

so much like a light switched on, but is a particular habit of consciousness, a personal quality, that sees the significant in a flash, and, in doing so, reveals the structure of truth in a particular situation. We say, let us suppose, of a scene witnessed that it was 'characteristic' of someone to behave in a certain way. Think of Mrs. Malaprop, Lady Bracknell, and Eliza Doolittle 'being themselves', which means revealing themselves—in other people's houses—and you will come to know that you can not have a literature at all unless people acknowledge freely that they can 'give themselves away' to each other.

The proper object for the poet is, of course, truth—is people being themselves—is the life in things—is the wonder of rocky fact. 'Examine nature accurately,' says Coleridge in *Anima Poetae*, and his own journals are filled with detailed observations. Numerous travellers' reports were the raw material of *The Rime of the Ancient Mariner*, and none was more fascinating than Frederick Martin's *Voyage into Spitzbergen and Greenland* published in 1694. There is too Joseph Priestley's detailed and curious chapter 'Light from Putrescent Substances' from his book *Optiks*, a scientific study giving 'The History and Present State of Discoveries relating to Vision, Light and Colours' published during Coleridge's lifetime. And there is too the account of certain marvellous fishes written by the Jesuit Father Bourzes in his chapter 'Luminous Appearances in the Wake of Ships in the Sea', extracted from the copious volumes *Letters of the Missionary Jesuits*. Two months after *The Ancient Mariner* was finished Coleridge went to sea himself for the first time in his life. 'Some people,' said Baudelaire, referring to a contemporary, 'show a total inability to comprehend the labour by which a reverie becomes a work of art.' And we may now complete the sentence begun from *Anima Poetae*: 'Examine nature accurately, but write from recollection; and trust more to your imagination than to your memory.'

Contrary to popular belief 'poets love facts', but, as we have seen, they may not accept them as they find them. In the world of poetry 'facts' become 'values' in accord with the

felt structure of the poem—that is, in accord with the quality of excitement the fact arouses in the poet. And, if facts become values, the words in poetry that contain the facts become 'symbols', having substance and otherness. 'They are really very shallow people who take everything literally,' writes Keats in a letter dated in March 1819. There are some equally shallow we may add who, in their use of language, treat it solely as a sign language—a vehicle for 'information' and instruction only. There is scarcely an object in the created world which, if it is a 'sacred object' to a poet, cannot be the subject of a poem. At the age of fifteen W. H. Auden began to write poetry, so he tells us in his inaugural lecture. At the time, he writes 'the subjects which touched upon my obsessions, my favourite books bore such titles as *Underground Life*, *Machinery for Metalliferous Mines*, *Lead and Zinc Ores of Northumberland and Alston Moor*, and my conscious purpose in reading them had been to gain information about my *sacred* objects. At the time, therefore, the suggestion that I write poetry seemed like a revelation from heaven for which nothing in my past could account.

'Looking back, however, I now realize that I had read the technological prose of my favourite books in a peculiar way. A word like pyrites, for example, was for me, not simply an indicative sign; it was the Proper Name of a Sacred Being, so that when I heard an aunt pronounce it pirrits, I was shocked. The pronunciation was more than wrong, it was ugly. Ignorance was impiety.'

Beyond this then, a poet, using every sense, cultivates a taste for words, for their texture, sound, limpidity, grace, weight, so that they may, as nearly as possible, be truly made to carry the equivalent of actual experience renewed in another world. And *what* does he make? An 'illusion in words', that is, a break with actual experience. A poem is not 'life': it is meaning of life: it is life simplified and intensified—and, in the words of T. S. Eliot, one of the sadnesses of the poet is 'to have the experience and miss the meaning'. A poem is an indissoluble unity of sound and meaning. Poetry, in the words of Milton, is 'the twin daughter' of music, and in the throb

and pulse of its rhythm it hears the echo of the dance. It is life that has 'suffered a sea-change':

Of his bones are coral made
Those are pearls that were his eyes . . .

The making of a poem is a 'redemptive act'—'these fragments have I shored'. The making too is a birth, an incarnation, a transforming act following a stirring of the waters by the meeting with a sacred object. It is a work of the whole personality.

Visitations of the spirit are dangerous—yet without the spirit there is no life. In the reflective words of Lord Byron from *Childe Harold*, spirit is 'the soul of thought':

'Tis to create, and in creating live
A being more intense than we endow
With form our fancy, gaining as we give
The life we image, even as I do now.
What am I? Nothing: but not so art though,
Soul of my thought! With whom I traverse earth,
Invisible but gazing, as I glow
Mix'd with thy spirit, blended with thy birth,
And feeling still with thee in my crush'd feelings dearth.

'There are diversities of operations, but the same Spirit,' said St. Paul—and he knew!

8: Creative Spirit? (The Artist)

IN France during the year 1948, the Ministry of Employment appointed a Commission on Intellectual Workers. An item which the Commission produced after a period of labour, was the following definition: 'A professional artist is one who devotes his life and work to art.'

Obviously feeling that the State and society had further obligations to this child of sorrow they provided it with some meagre clothing and went on to define that 'an artist, from the point of view of society is one who, after spending a great part of his youth on the study of his art, often under great difficulties, then devotes the best years of his life to the exercise of his thankless profession, which seldom enables him to provide for his old age, and entitles him to none of the advantages provided by the State to other categories of workers.'

The note of irony in this more lengthy definition is a sufficient indication that the position of the creative artist in society as viewed by a bureaucratic commission is that of a poor relation.

Another point of view is illustrated in an anecdote which has the stamp of truth, about the artist, during the First World War, who by reason of a physical disability could not serve as an active soldier. He sought out a relation highly placed in the War Office and volunteered for some work which would assist the national effort. Personal details were entered on a form, and when asked the question relative to occupation he replied, 'An artist', to which the rejoinder was 'Let's put down "gentleman", it doesn't sound so silly.' In this case the artist was a distinct embarrassment.

Even a writer of the distinction and popularity of Mr. H. G. Wells in two major works, *The Outline of History* and *The*

Work, Wealth and Happiness of Mankind, gives us little information on the position of the artist and his productions. In these lengthy surveys of the activities of the human race we find the author's reason for this scant attention: 'Artistic productions, unlike philosophic thought and scientific discoveries, are the ornaments rather than the creative substance of history.' We learn also that art, unlike the more practical and useful occupations such as war, politics, commerce, and science, is merely an outlet for Mankind's surplus energy. This surplus energy is expended uselessly but delightfully in such activities as painting, the production of poetry, music-making, dancing, football, cricket, and similar leisure-time gymnastics.

From the dusty caves of Altamira we can learn little of the commercial or military occupations of the former inhabitants, but we can be comforted in the knowledge that they had enough surplus energy to spare on at least one of the useless but delightful activities.

The popular view of the artist and his position in society is strangely depressing. It presents a picture of a rather ignoble existence on the outermost fringe of society, a poor relation, an embarrassment or a barely tolerated playboy.

While not claiming any special privilege for the utterances of an artist, we can perhaps examine an artist's point of view as expressed by Jacques Villon at Unesco's International Conference of Artists in 1952. He said: 'Artists have always been the chroniclers of the society in which and by which they have lived. They represented society and knew that they did. Their art has never been used for championing protests or claims, but for giving expression to the lofty spiritual aspirations of their contemporaries. Artists have always taken it for granted that they should form part of society.'

This claim takes the artist from the limbo in which the general attitude has placed him and puts him at the very centre of human activity as the means by which the spiritual questions of mankind are given concrete form.

The vital priority in human development is the will to live, and all our faculties serve this end. A faculty cannot grow in

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isolation, neither does it grow unless there is purpose in its development. The will to live and live more fully makes complex and varied demands upon our faculties, and the development of art, magic, and, later, religion was the answer in part to this devouring need in primitive society.

The lowly and humble origin of art in primitive man and the child, scribbles and signs which grew into significance and the recognition of their meaning, is the will to form and create answering the will to live. This response has acquired, in the process of its growth, a vitalistic quality which we recognize as an aesthetic component of art. The vitality of this aesthetic component is communicated to the symbol by intensity of feeling which is the instinctive link between imagination and the adequate image.

Art, recognized in these terms, has grown from the very dawn of civilization into one of the most certain forms of expression that mankind has achieved.

Throughout the ages man has laboured to achieve power and material happiness, and in doing so has followed manifold occupations and made many things in his struggle for survival. He has as yet never exhausted his resources and his powers of contrivance. He has made a mountain of learning which grows ever higher and has spoken many tongues, yet in every age he has found what we can perhaps define as the material or scientific outlook of his era insufficient for his needs. Behind his accumulated knowledge of objective facts there exists a world, the dimensions of which can only be measured by intuition and instinct. The development of these obscure means of apprehension has been the purpose of art. We may understand the universe, the atmosphere, the rotation of the earth and the planets, and the composition of the moon. We may be taught how many millions of miles distant is the sun, the degrees of its temperature, and the billions of its candle-power. All that knowledge we may acquire and yet miss the radiance of the sunset and the mystery of a moonlit night. That loss is only made good by the artist within us and the artist among us. We are not near the understanding of the universe unless we realize the significance of the knowledge

that is embodied in the artistic experience. Knowledge and philosophy built upon scientific knowledge has always proved to be temporary and impermanent. Art on the contrary is everywhere, its manifestations at any time during our march from the dawn of civilization are universal and eternal. We will begin to appreciate the significance of the creative artist when we realize that we can arrive at an understanding of our environment by the artistic mode of knowledge which is distinct from but parallel to other modes of knowledge. In all its activities art is in ever changing forms giving expression to the aspirations of mankind, telling us something of the world, of mankind, and in telling us that, revealing something of the artist himself. The world of art is a system of knowledge as important to us as the world of science or the world of philosophy.

The first man who drew an image on a rock was performing a two-fold function—creating and communicating. The first, the desire to create, the will to form, is a reflection of the creator's personality. From the knowledge of the world as it is revealed to him, and as he understands it, or from an intuitive perception of the mysteries that surround him, he creates his pictorial equivalent, his sign, symbol, or image—call it what you will.

It can be as simple as an eland painted by a Bushman or as complex as the Sistine's 'Last Judgement'. The pictorial form that the symbol wears will vary from age to age according to the demands of the society in which he finds himself, for the artist takes his tempo and his tone from the society of which he is a member. He will to a great extent express the psyche of the age, and will use the materials placed in his hands by the circumstances of the time.

He will paint on the wall of a cave, carve a Madonna for a cathedral, paint a panel for the boudoir of a Pompadour, or paint a canvas for a patron he hopes to find. The artist will accept any conditions so long as they express his desire to create.

The second function is the communication of understanding to his fellows. He does not expect his fellows to share his

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original emotions, but hopes that they will perceive and apprehend his creative initiative.

What of the creative process as applied to the visual arts; is the artist a special sort of character?

I realize the pitfalls into which we can fall in drawing analogies between the arts, but if we attempt it something useful may be learned.

The visual artist sometimes envies the composer of music, for the components of the musician's art are purely abstract. To put it simply, they are unlike anything but themselves. They are, in fact, a collection of noises and he may arrange these elements at his will, thinking of nothing but the form he is creating and the mood he is expressing. The poet perhaps is less fortunate, for he deals in the ordinary copper currency of everyday speech. He too is conscious of his form but his words must be selected to convey understanding. The visual artist deals with the substance of the visible world. Every person who has the use of his eyes is already on some sort of terms with that world. An artist may not even draw two related lines without the spectator thinking: 'It looks like this or that', but more usually and sad to relate: 'It doesn't look a bit like this or like that.' So from the artist's point of view the world in which he finds his raw material is, in a sense, contaminated. For this reason the average person whose pictorial sense is not sharpened will usually prefer the picture which is naturalistic, or comes very close to Nature, because recognition is immediate and no imaginative response is required. Coupled to this is the fact that many people are already conditioned to pictures, they may prefer the world to be represented in terms with which they are already familiar and can with readiness accept by virtue of that familiarity.

The visual artist, if he is to be truly creative, must also destroy if he wishes to progress. He must override the traditions and forms of the past from which he has derived.

A work of art, it is generally accepted, is a product of the artist's inner vision or imagination. As an object it may or may not be useful, but whatever else it may be it must exist in its own right. It has to be made of something—paint on

canvas, colour on paper, stone or bronze, plaster or mosaic. It may represent anything from a duke to a dustbin, a flower to a sunset, but representation has to be translated to a medium which has its own set of laws, and the work of art must abide by them. The form which it takes must be appropriate to the medium used. The condition of existing in its own right implies dimensions and completeness. A musical composition has a certain length, the form must be unified and complete within a period of time. Equally, visual art must have a unity of form and be a complete statement within certain size limits. If on a piece of paper of specified size we draw a line that joins with itself like an oval and then repeat that shape elsewhere on the paper, we have then not only two shapes which are related to each other but also a relationship which exists between the shapes and the four edges of the paper. That relationship can be good or bad, irrespective of whether the lines represent ovals or eggs, buildings or bodies. Turn it upside down and that formal relationship, if good, will still remain.

These, then, are three of the creative artist's main preoccupations. If a painter, he is not only representing something and his feelings towards it, but he is concerned with its 'paintiness'—that is, the medium. Further, he is thinking that what he is painting is justifying itself by its shapes and colours alone.

The visual arts depend in the main upon representation, or rather let us say that the artist feels a certain obligation to the appearance of things. That sense of appearance or deference to likeness may be at conflict with the artist's sense of form—which is the disposition of lines, shapes, and colours. To condense the matter, three factors have to be balanced. First, what the artist wants to say or express through the subject he has chosen. Second, the degree of representation which he is willing to allow himself on the appearance of his chosen subject. Third, its abstract form, pattern, and arrangement.

If we think of the works of art, past and present, with which we are familiar, we shall realize how important is the weighting and balance of these values, and how the artist's

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sense of obligation to the balance has altered from age to age. Only the greatest painters can survive the resolution of this problem and the results or weighting of one value against the other has led to much confusion on the part of the spectator.

When we understand this delicate adjustment we shall be closer to an understanding of visual art.

Let us examine briefly the process of painting an imaginary picture by an imaginary artist so that we may learn a little more about the problems that confront the creative artist and how he may deal with them.

Our artist has been commissioned to paint a picture. His patron has expressed a preference for a particular subject, something quite familiar, a humble still-life, in fact fruit and flowers.

So it is a question of thinking of things like bananas and pineapples, oranges and flowers, vases and plates. We will imagine our artist to be not one of those who is only happy when painting something like 'Truth Tearing Out the Tongue of Falsehood' or 'The Fall of the Rebel-Angels', but who is on the contrary a nice, simple, uncomplicated fellow who is capable of making some imaginative response to the vegetable world.

Our artist will have four main tasks to perform. He obviously will not deal with them separately, as I must, but he is all the time conscious of their separate and collective demands. Three of these tasks are essentially creative, the fourth is one of craftsmanship. More exactly, one in the heart and head, two in the head, one with the hands. That is simply put, but it will serve, and these tasks and their respective claims must be reconciled.

I claimed that our artist must make some imaginative response to the vegetable world, he must have some feelings about fruit and flowers. In communicating these feelings he must invent a set of shapes and colours that will express those feelings. This is the heart and head problem. Do not imagine that every artist feels the same about fruit and flowers.

One might feel that the subject is a symbol of the bounty and abundance of Nature; a ripe glory. This attitude could be

symbolized pictorially by richness, brilliance, and luxury of colour, combined with ripe, swelling, curvilinear forms.

Another might feel sensations of solid forms, weight and mass, relations of curve to curve. A third might react to light and colour. The shimmer of iridescent light through the petals of a flower, the gleam of light on the golden skin of an orange could be an expression of the ripening sun and a wonder world of light and colour.

Again, another might see in fruit and flowers a premonition of death and inevitable decay. Dead sea fruit where oranges become shrunken skulls, where bananas are the crimping, skeletal fingers of death and flowers serve only for a grave in a dead grey world.

The colours and shapes which this process conjures up are not representations, not the pictures of the seedsman's catalogue—they are pictorial equivalents or symbols of imaginative ideas.

The second task at first thought is quite easy. The artist has to make shapes and colours which will remind the spectator of fruit and flowers. Even a child can do it and we can observe it quite ably done through the levels of the popular calendar and the chocolate box. The really difficult part of it is to reconcile it with our first requirement. To balance the abstract symbols of feeling with representation or appearance is a difficult compromise. We are familiar with the type of painting that overbalances so heavily on the side of appearance that all feeling is cancelled out and we are left with a pictorial document relating solely to certain aspects of the vegetable world: the real picture on the packet, the seedsman's catalogue.

On the other hand the symbolic forms of pure feeling can be so abstract, with appearance playing such a small part in the picture, that the unfortunate spectator has no terms of reference from his own experience of the visual world.

This balance was aptly demonstrated to me when a student. A group of students including myself were being taken round the courts of the Victoria and Albert Museum by our Professor of Architecture. We stopped to examine a humble

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enough thing—it was a weather vane in the shape of a cock from a French church of the thirteenth century; one sheet of metal from which the shape of the cock was cut into a bold silhouette. It was indeed a rooster, energetic and bold, clean, swift, and simple lines flowing from beak to flying tail. Poised for flight against the wind, streamlined and simple, it was yet so expressive of the proud bird of dawning. Nearby, was another example of the feathered world. Another rooster, a product of the seventeenth century. This was also in metal but completely in the round. Each feather was curled, crimped, and perfect in its closeness to reality, its legs and feet minutely scaled, comb and wattle heavily pendant. A miracle of workmanship and skill but, sadly, it remained a heap of metallic feathers. Our professor pointed to the thirteenth century weather vane. 'Now that,' said he, 'I call art', then sadly surveying the other monument of metal feathers he dismissed the bird with the remark, 'and that is just poultry.'

To proceed to the third demand. The artist has to use a set of shapes and colours that will fill the required picture space happily. This business of filling a shape in a satisfactory manner is something that is extremely difficult if not impossible to describe. Language will not serve, for the crux of the whole matter is that painting is its own language. One could always say of the picture: 'Yes, I like it, I feel I can almost smell those flowers and the fruit looks good enough to eat.' But these remarks have nothing to do with the requirements of our personal task.

Even the sometimes rather precious jargon of the professional art critic is inadequate, and the majority of us are reduced to rather vague and inexact phrases. We talk vaguely about the balance of shapes, harmony of line and movement.

It is all a question of the pictorial aesthetic. Through the ages artists have tried to formulate rules for this pictorial aesthetic. We find that the ancient Egyptian and the Greek had a geometrical conception of this problem of filling a space. A Chinese artist would have quite a different method from the Gothic artist, and both would be quite at variance

with the Greek. The modern artist familiar with so many varied solutions from the whole world's art will probably devise a system with which we at first are quite unfamiliar. Task three remains something which we can apprehend and appreciate in its solution, but which can only be described in paint and not in words.

The fourth and last requirement is to translate the preceding three into a painted picture on a flat surface.

To explain a previous point I attempted an analogy with other arts. Now we will venture again, using one of the useful arts as an example as opposed to the Fine Arts. Imagine it to be something like this. Three basic ingredients are put together, then thoroughly mixed and flavoured with all sorts of things from saccharine to vinegar at the cook's discretion. The mixing and the cooking is this latter process, and then follows the proof of the pudding. Our reaction to this depends upon the skill of the cook and our own tastes and preferences. Some like their pudding heavy and doughy, others prefer it crisp and light, some will rather have it rich and fruity and others sweet or savoury.

To return to painting. This mixing and cooking process is of course where the personality of the artist is most clearly in evidence and where much depends on the medium used. The visual evidence of the personality of the artist plus his manual skill is known as his style. For the way a painting is done is in a sense the autograph of the artist, his own unmistakable voice, the signature tune, or what you will—the completely identifiable part of him which is evidenced in his painting. It is a better clue to his identity than any signature in the corner of the canvas, or a name printed in a catalogue. This is the quality which we identify when we look at a picture and experience that recognition which is as pleasurable as the sound of a well-loved voice. It is the paint of a Turner, that magical equivalent of light; the bravura of a Rubens; the delicate charm that is Renoir.

Just as a certain sequence of chords can suddenly make us aware of a whole world of music, so sometimes a balance of colours and forms comes as a revelation and makes us see that

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a canvas is a magic window opening on another world—a world different in kind from the world of reality.

From these things art is born; from the lure of the elusive, the inapprehensible, from the desire to wrest forms from the real world where man is ruled, and make them enter the world of art where man is the ruler. The artist knows that his domination of this world is precarious. Yet in his very beginnings he is conscious of embarking on a great adventure, for he is going on a journey to a yet unknown land, and if he arrives the whole world will be richer, but always his comfort will be that at least he is bound to get somewhere.

To conclude I would like to quote a passage from the notebooks of Leonardo da Vinci: 'If the painter wishes to see enchanting beauties, he has the power to produce them. If he wishes to produce monstrosities, whether terrifying, or ludicrous and laughable, or pitiful, he has the power and the authority to create them. If he wishes to produce towns or deserts, if in the hot season he wants cool and shady places, he can make them. If he wants valleys, if from mountaintops he wants to survey vast stretches of country, if beyond he wants to see the horizon on the sea, he has the power to create all this, and likewise, if from the deep valleys he wants to see high mountains or from the high mountains deep valleys and beaches. Indeed, whatever exists in the universe, whether in essence, in act, or in the imagination, the painter has first in his mind and then in his hands. His hands are of such excellence that they can present to our view simultaneously whatever well-proportioned harmonies real things exhibit piecemeal. . . . The Painter has the Universe in his mind and hands.'

9: Interpreter of his Past?

DOES the past reveal to man the meaning of his existence? Can it explain his current actions? Does it point the road which he must follow in the future? These are some of the questions to which the study of history might give rise. If we are to try to answer them we must go a step further and inquire whether man can, or indeed should, consciously attempt to interpret his past. Again we might ask, does man unconsciously interpret his past? Is he so influenced or conditioned by what has gone before that he has little control over the present or the future?

If we look at this latter aspect of the problem first it is immediately obvious that men are influenced in their thinking and in their actions by what has gone before and by their current environment. But 'influence' is not a sufficiently strong word to express the view of those who believe in, for example, the irresistible forces of economics and the immutable character of racial inequalities. Such people believe their opinions to be facts of life borne out by the evidence of history. They do not think that man should accept these facts passively. Rather there should be endeavour to understand them fully so that he can order his life in conformity with them. Economic determinism thus continues to be a popular fallacy in spite of the fact that many distinguished economists have demonstrated that totally unpredictable occurrences do subvert expected economic trends. Similarly, supporters of racial inequality still seek refuge in misreadings of history, although in very recent years Nazism has provided a devastating indictment of the inevitability of Aryan supremacy. Nor is it only the folly of historical determinism which history demonstrates; it is the horror too. The inevitable class warfare of communist ideology results not only in a totally

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materialist concept of life but also in the complete subjection of the individual to the power of the state. Above all, by its insistence upon inevitability and therefore the rightness of the pattern it lays down, such a doctrine denies to men the right of further inquiry, of criticism, and even of honest misgivings. Nor in these circumstances can doubters be simply left to suffer the consequences of their uncertainty. They must be deliberately treated as underprivileged beings with no claim to citizenship. But can we honestly accept that non-conformity must condemn men to helotry or destruction? As one historian has written, 'Can the spread of servitude, by whatever benefits it may be accompanied, be a matter for congratulation?' Neither the impersonal forces of economics nor the man-made power of the State could ever justify such an attitude. Indeed, the reaction to these 'inevitable forces' is rather to win sympathy for the individual, no matter what his idiosyncrasies.

Does this mean, then, that the historian's search for the meaning of man can only lead us to the conclusion that the essence of men lies in their differences, and that past experience is therefore valueless, and should be so? This is not necessarily the case. There are many who recognize that history is the study of men rather than of man yet who endeavour nonetheless to find an explanation and justification for their behaviour in a reference to the past. Far too often, however, they cull from doubtful or ill-digested sources the evidence which suits their purposes while neglecting any facts which appear contradictory. This arbitrary technique may throw light upon the unscrupulous or careless nature of the individuals concerned, it provides little evidence as to whether history can throw light upon the nature of men. It is clearly so unsystematic that it might be discounted if it were not for the fact that as a means of justification it is becoming increasingly popular.

Equally popular and possibly more worthy of attention is the powerful desire which drives men to attempt to generalize or to classify. Such phrases as 'the spirit of the age' or 'the English character' appear to satisfy some craving in human

nature. Perhaps they reflect a mixture of attitudes. On the one hand they may be the result of a reaction against the older reading of history in which emperors, kings, and generals made their decisions while ordinary men simply carried out the orders of their superiors. An 'English character' or 'the spirit of the age' might enable men to transcend this servile rôle. Such an explanation might also, perhaps, account to some extent for the popularity of so-called social history—a preoccupation with the activities of the sturdy yeoman, with living conditions in early industrial towns, with the work of the guilds, or even with the aims of the mob in some local rebellion. Looking at history in this way a man might feel himself swept on through his association with the past in a grand inevitable advance. The cynic, on the other hand, might only be led to rejoice still further in his own unique position while deploring the activities of society around him.

The real question, however, is whether there is any merit in these attempts at generalization. There are certainly some professing historians who believe there is, and some carry their conviction so far as to indulge in selective readings of history, on which, unfortunately, they presume to formulate laws which they claim to be valid for all time. In doing this they might argue that, like the scientist, their object is to select only relevant topics so that, having deliberately omitted all extraneous issues, they can justifiably deduce certain useful generalizations. In criticism of this approach it might well be argued that society is much more complex than the subject matter of the experimental sciences; even if one were to try to limit one's observations to the forces at work in a given society at a given moment of time it would be extremely difficult to take into account every factor affecting that society. Above all, the variations between the human beings comprising any society and the unpredictability of their actions would be so great as to rule out any generalizations which could be of value either to the present or to the future.

If this criticism is sound the study of history could only be a matter of pure research with no useful application. Yet the

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argument appears to involve a contradiction, for it implies that the richness and variety of historical evidence itself contributes to the 'uselessness' of historical investigation. In fact, the contrast between the scientific method of formulating laws by controlling the circumstances in which reactions are observed and the methods of the historian is not unlike the difference between the symbols of a statistician's population diagram and the detailed character study of a Rembrandt portrait; the one is deliberately standardized so that it can be repeated indefinitely and given a wide application, while the other is the complete representation of an individual as seen and interpreted by the artist. Although the artist has rightly stressed the unique result of the integration of a variety of mental and physical characteristics it must, however, be recognized that he cannot wholly obliterate the human symbol of the statistician. While, therefore, the methods of the scientist are not wholly suited to the work of historical investigation, a total absorption in the individual would omit the important part played by society in history and therefore in helping towards an understanding of the meaning of men.

It is a truism to say that society is something more than the simple aggregate of the individuals comprising it. However deeply one deplores the foreigner's concept of the Englishman abroad one has to admit that there is an element of truth in it. More seriously, the interaction of individuals living together does produce a new organism which is made manifest in the special customs and institutions which are engendered. While, therefore, it may be difficult to assess the peculiar contribution of any individual to the emergence or to the perpetuation of the society in which he lives, it is not unreasonable to expect individual members of that society to act at times in accordance with certain predictable and observable trends. This is not a question of incontrovertible laws. No prophecy about future events can be uttered with confidence. Yet, while being fully aware of the likelihood of individual variations, the study of the history of men in society can justify one's being on the lookout for likely eventualities.

The important thing is that one must choose the right vantage point; one must start by asking the right questions. One would not get very far, for example, if one were to start one's investigation of the influence of the past upon the meaning and purpose of men by asking such a subjective question as 'Was Britain wrong to build an empire?' A more fruitful starting point might be the more general question: 'What motives impel nations to create empires?' There are, of course, leaders of political opinion in dependent states who would have a ready answer to that question. It would be based upon no detailed study of history, but undoubtedly the past would colour their view. They would say that in the demands of strategy, the hope of financial gain, or the attractions of political prestige could be found the true motives of all imperialist endeavour. There would be an equally ready rejoinder from defenders of the colonial powers, who, again with a vague reference to history, would stress the civilizing mission of the great powers, or else humanitarian considerations, or perhaps the fine spirit of adventure which had spurred on their forebears. Is there any truth in either account? Both these hypotheses stimulate thought, but the only way to answer such a question is to look at the evidence of the past. One can then compare one era with another, one colony with another colony, one imperialist power with another of similar inclinations. Let us, however, as an experiment look briefly at the motives which impelled Britain to establish her rule in Uganda and see if there are any dominant themes which might be a useful guide to an understanding of the more general issue of the motives of imperialism.

A study of the early years of British interest in Uganda will quickly demonstrate the strange mixture of truth, half-truth, and positive error contained in the opinions of both the political leaders and the supporters of imperialism referred to above. It will also show, perhaps to the surprise of the political leaders, that the acquisition of a dependency may be far from central to the main objective of the imperial power concerned. Furthermore, although it is in general fair to describe the motives of the British Government as 'the British

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motives' it will be seen that other Britons played a not insignificant rôle in Uganda's affairs in spite of the fact that their motives differed radically from those of the Government of the time.

That strategic considerations were uppermost in 1890, when Britain and Germany agreed to include what is now Uganda within the British sphere of influence in Africa, cannot now be doubted in the light of the available evidence, although with our greater knowledge of the geography of the African continent we may be surprised that this should have been so. Having stumbled into a position of responsibility in Egypt in 1882 Britain had set in motion a chain reaction of suspicion and acquisitiveness among the other European powers, more particularly France, which threatened to absorb the whole of Africa into one or other European empire. Moreover, since Britain had intervened in Egypt to safeguard her communications with the trading centres of India and the East, it now behoved her to protect Egypt from the new threat of European imperialism in Africa. So far as the British Conservative statesmen of the day were concerned the very survival of Egypt made it necessary to secure the Nile valley and the headwaters of the Nile from encroachment by other European powers. In this roundabout and to modern eyes somewhat illogical fashion Uganda became a British sphere of influence. Strategy indeed was a compelling motive; economics, too, but the economics of the Far East rather than of Uganda itself.

Having gone so far the interest which the British Conservative statesmen had shown in Uganda waned appreciably. On paper at least the region was now secure against foreign aggression and that, after all, was the main object. The Liberal leaders had even less desire for acquisitions in the heart of Africa, even though Gladstone himself had been Prime Minister when Britain originally intervened in Egypt with military force. Nonetheless, it is fair to say that a paper agreement in itself was not a wholly secure foundation for Britain's strategy and it might be argued that more active intervention in the affairs of the lake region must inevitably follow if British

interests were to be protected against the aggressive policy of France.

True though this latter proposition might seem, the impulse which led to the declaration of a protectorate over Buganda in the first place came from a very different quarter. Indeed, the Marquess of Salisbury, leader of the Conservatives, hesitated even to introduce a modest bill to finance the survey of a railway from the coast to Uganda because he was fully aware that strategic considerations did not weigh so heavily with Parliament as did questions of economy. Moreover, the Protectorate was eventually declared in 1894 by a Liberal Government, most of whose members had consistently denounced imperial expansion in Uganda as in other parts of the world. The Liberal Foreign Secretary, Lord Rosebery, who succeeded Gladstone as Prime Minister in 1894, did not sympathize with his party's attitude over this matter. But Rosebery could never have carried his Cabinet and a large proportion of the Parliamentary Liberal Party with him had it not been for the lively campaign waged by the Church Missionary Society and allied Christian and humanitarian groups in favour of more positive action by the British Government in Uganda. Where British missionaries had pioneered the way could the British Government remain inactive if the declaration of a protectorate might save the work of the Church from extinction and African converts from death? Thus argued the proponents of British responsibility for Uganda. They were supported by others who affirmed that where the representatives of a British Company chartered by the Crown had entered into agreements with an African ruler the British Government could not morally reject the obligations thus assumed when the Company itself, through financial stringency, was no longer able to fulfil them. Indeed, it was asked, since the Government had not specifically disapproved were they not legally bound to honour the Chartered Company's actions? The Lord Chancellor thought so.

Thus, religious, moral, and even legal arguments influenced the next stage in Uganda's development as a British dependency, although strategic considerations may still have

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weighed more heavily with the Conservative opposition in Parliament. It is true, too, that the potential wealth to be derived from the development of Uganda's resources was also canvassed, but this had little influence upon Rosebery's decision. After all, any shrewd businessman could readily recognize that Uganda offered a meagre prospect of immediate returns to investors. Minerals there might be, but so far there had been no sign of them. Uganda's agriculture, meanwhile, was of a subsistence character, and to promote economic crops would require not only investment and organization but also a vast improvement in the communications between the new Protectorate and the outside world. Perhaps the possibility of developing Uganda economically did play its part in inducing Rosebery's Government to accept the idea of building a railway from the coast to Lake Victoria; but Rosebery was out of office before this proposal was implemented and Salisbury's Government which put it into effect had its eye once more on Nile strategy. Even now, although Buganda had been declared a protectorate, the boundaries of British protection were extended over the rest of the region only very slowly and in a haphazard fashion. Bunyoro, Busoga, Ankole, and Toro were included within the Protectorate in 1896 only because the security of Buganda had already resulted in British intervention in these neighbouring areas. Northern Uganda, beyond the Victoria Nile, remained simply as a sphere of influence until the twentieth century. Meanwhile, the object of the British Government was to interfere as little as possible in the affairs of these lands at the headwaters of the Nile.

The people who did make a revolutionary impact upon the affairs of Uganda in the closing years of the nineteenth century were the Christian missionaries of both Catholic and Protestant persuasions. These missionaries, however, even those of British origin, had only the most tenuous association with the policy of the British Government save that the survival of their work had been largely guaranteed by the declaration of a British protectorate. The British Government, had it been called upon to do so, might have admitted that the

missionaries constituted one branch of the civilizing mission which the British had vaguely recognized as their obligation at the Brussels Conference of 1890. But the subversive influence which the missionaries exercised upon the politics of Uganda or, more accurately, of Buganda, was the by-product of their desire to establish the worth of the individual as a child of God and was in no sense an aspect of official British policy. Their teaching inevitably clashed with the authoritarianism of the existing political system in Buganda, and the situation was further complicated by the fact that there were two rival Christian factions as well as a strong Muslim element in the territory. Instead, therefore, of the Kabaka's being faced with the simple alternative of remaining loyal to his pagan traditions and opposing a single enemy or, on the other hand, of adopting Christianity and becoming the secular leader of a new faith which all his people might have accepted, the unity of Buganda was temporarily shattered by the rivalries of the several contending groups. By the time unity was restored an opportunity had been provided for some of the Kabaka's leading chiefs to strengthen their position at the expense of the Kabaka himself. In this way a form of oligarchy replaced the old unquestioned autocracy. The missionaries may well have considered this to be a salutary development, but it was certainly not part of any planned programme to destroy the Kabaka's power.

The reaction of the Unionist Government in Britain to the upheavals in Buganda in the later 1890s was one of concern both at the military expense involved in the maintenance of order and at the growing need for active British intervention. The decision to send a Special Commissioner to Uganda in 1899 and the terms of reference under which Sir Harry Johnston accepted that offer, indeed the very terms of the 1900 Agreement which he made with the Baganda, were all directed to the object of reducing the burden of British intervention in Buganda's affairs. Although the 1900 Agreement laid down rates of taxes and the means of collecting them, its basic object was to ensure the co-operation of the leading citizens of Buganda in running their own country peaceably.

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Economic issues intruded themselves, not with a view to creating profits for Britain or even for individual British investors, but simply in order to avoid undue expenditure by the British Treasury.

Nevertheless, since Britain had become increasingly involved in the responsibility for administering the affairs of Uganda it seemed highly probable that the economic development of the territory would follow in due course. It should be noted, however, that this economic aspect of Britain's intervention in Uganda arose only when Britain was faced with the increasing costs of administration, and did not form part of the original motive for declaring a protectorate.

Once the need to develop Uganda's economy was recognized a number of methods were proposed. Mr (later Sir William) Morris Carter, a judge of the High Court and subsequently Chief Justice of Uganda, consistently advocated the adoption of a policy which would encourage European planters to settle in the Protectorate. In making this proposal he was supported by a number of his contemporaries. A variety of obstacles prevented the fulfilment of his scheme— inadequate communications, an unsuitable climate, and the rival attractions of the Kenya Highlands to the east. But it should be recognized that His Majesty's Representative in Uganda, Sir Hesketh Bell, who was Commissioner and Governor from 1905 to 1910, was wholeheartedly opposed to the plan and instead favoured an experiment in encouraging African peasant agriculture. The British Government itself, meanwhile, was concerned at the way they had lost control over land in the Gold Coast a few years earlier and were solidly opposed to any policy which might threaten the interests of the African population of Uganda. Immediately after the First World War this attitude was relaxed for a brief period when Lord Milner was Colonial Secretary. But by that time the theme of trusteeship had grown too strong and the foundations laid by Bell were too secure for any permanent reversal of policy to be feasible.

Although Africans were thus protected in their rights over land and although they became virtually the only primary

producers in Uganda, one might still ask who benefited from their efforts. Certainly the British Cotton Growing Association appeared anxious to encourage cotton growing in Uganda, and the object of that body was simply to guarantee the supply of raw cotton for British mills. Undoubtedly, too, European and Indian ginning companies made adequate profits from processing the cotton crop. Yet the growers themselves derived a not wholly disproportionate benefit. The prices they were offered, except in the early years of the War, were not out of line with world prices. Their material standards of living visibly improved. The taxes they were enabled to pay brought in return better administration and, over the years, improved social services. No one has investigated the profits derived by British subjects from Uganda's economy, but profits there must have been. Again, however, there is no indication that Uganda's wealth was deliberately drained away by British citizens to the detriment of Uganda's population, nor had the British Government the intention at any time of benefiting financially from its association with Uganda. In January 1922, the Acting Governor, Mr. E. B. Jarvis, stated at the annual conference of the Uganda Planters Association: 'No one can deny that Uganda has immense agricultural and pastoral possibilities . . . but the more I turn over the matter in my mind, the more convinced I become that Uganda's future lies in the cultivation of the soil and the growing of the crops by the natives under scientific supervision by the Agricultural Department and the purchasing and marketing of these crops by Europeans.' Although this pattern was, broadly speaking, adopted, it was varied almost at once by the establishment of the Buganda Growers Society to market African-grown cotton and, in the 1930s, by the more active development of co-operative marketing of cotton by Africans. In the later 1940s the Protectorate Administration itself, with the full approval of the Labour Government in Britain, introduced measures to enable Africans to participate in the more technical sides of agriculture by helping them to purchase cotton ginneries and by means of legislation aimed at encouraging them to take part in the processing of coffee.

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The benefits thus accruing to the Africans of Uganda have again been self-evident.

I have carried the story of Britain's activities in Uganda up to the very recent past and this may seem an unnecessary extension of the inquiry. Yet it might equally be argued that only in retrospect, in the light of subsequent developments, can motives be clearly seen and fully appreciated. In the case under consideration, however, it would be equally true to say that the motives for British interest changed with the passing years from strategic considerations to a sense of trusteeship for the peoples of Uganda. Moreover, even trusteeship changed its meaning from that of a paternal sense of protection in the 1920s to a recognition in the 1940s of Britain's obligation to develop the potential of Uganda's population as well as of her economic resources. Both these changes might be ascribed to the changing climate of world opinion, a change which Britain herself did much to bring about. Nonetheless, the changes are such as might be looked for in areas other than Uganda.

An investigation such as the one briefly outlined does, therefore, suggest that it is not impossible for the student of history to discover themes which might assist him in anticipating the behaviour of men in society with at least a reasonable degree of accuracy. Motives, too, can be traced by the historian, while judgements can be passed upon the actions of men in history, albeit with caution, and they can give some indication of the way men should go in the future. They might even, too, suggest something of the meaning of men's existence. Nor do the qualifications with which I have deliberately limited each and every one of these statements render them useless. For, above all, the study of history shows that, even while interpreting their past, men still retain their freedom as individuals, as men delighting in idiosyncracies and encouraged by ideals. The recognition of this individual freedom enriches the scope of the historian's inquiry into the past and his conclusions about the present and the future, driving out the doctrinaire approach to people and events which un-historical generalizations bring in their wake.

10: A Social Creature?

WHAT do we mean by a 'Social Creature'? Someone who is always chatting on the street corner, ringing up his friends, or propping up the Top Life Bar? No, you will say; yet there is this grain of truth in it that the *solitary man* is ultimately incompatible with human society. I myself have a great weakness for solitaries and hermits, but I have to admit that they lack one of the fundamental requisites of society. They fail to reproduce themselves. We must not forget, either, that, in Africa, to eat alone is often to be accused of being a witch.

However, society can tolerate and even be greatly enriched by a certain number of solitaries, provided they have once been *socialized*. By this ugly word we mean that process of interaction between an infant and its parents and primary group without which it fails to become fully human. This is the education which every member of a human society has, whether there are schools or not. A girl who was brought up in isolation with her deaf and dumb mother till the age of six, could not talk, walk, or do anything that showed intelligence. Her behaviour at six years old was like that of a child of only six months. The remarkable thing was that under careful teaching she learnt very quickly, beginning to walk, talk, and hear, and eventually going to school as a normal child. In other cases of abnormal infant isolation, reported from many parts of the world, including Europe, America, and Asia, without expert attention children never fully recover and fail to master the skill of speech.

This brings us at once to the fundamental difference between human society and the very highly organized life of insects. Insects do not learn their complex behaviour; it is already incorporated in their genetic constitution. Insects are

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able to get their food and construct their dwellings without any learning process. They do this in an unerring and efficient manner that appears to us simply automatic. But it is a commonplace that the human infant cannot survive without prolonged and careful upbringing. It is not merely that the baby is physically weak, but it simply does not know how to satisfy its basic wants and is not equipped with the unconditioned reflexes of the ant to guide it in these matters. The baby does not even know what food is, and it is in danger of injuring, poisoning, and killing itself by indiscriminate oral experiments, unless protected against itself by adults.

Where, then, do language and culture begin? Recent research on Japanese monkeys proves that they have a definite social system, they communicate with one another by mutually intelligible oral sounds, and they are also capable of symbolic, or ritual, behaviour. At least four distinct age groups were observed among male monkeys, each with its own different rights, obligations, and position in relation to the rest. Leading males had several females attached exclusively to them and they kept order among females and children generally. Food supplies were enjoyed by the different age and sex categories in a definite and regular order. The subordination of younger males to the leaders, and to the system maintained under their authority, was symbolized by a leading male mounting a junior in the same position as he used in mating with a female. The acceptance of this posture by the junior seemed to express his submission to the régime of authority and order, both after particular acts of transgression and on certain regular occasions.

In these Japanese monkey societies over thirty distinct cries have been identified and related to specific situations. Their meaning has been tested and proved by playing them back to monkey groups on tapes. The cries are basically common to the different groups, with minor variations. *Have we here the birth of language?*

Language has been defined as 'a system of *arbitrary* vocal symbols by which members of a social group co-operate and interact¹ and by means of which the learning process is

effectuated, and a given way of life achieves both continuity and change'.

Language is again *learned behaviour*, as opposed to mere communication, which is instinctive.

Basic English has 850 words and I doubt whether any human language has a vocabulary of as few as a thousand words. The Japanese monkeys may be given credit for many more than the thirty meaningful symbolic sounds so far recorded, but even thus giving them the benefit of the doubt, we seem to have here something like a measure of the difference between man, as man, and the monkeys.

Here again we must note that actual physical differences in the vocal cords accompany the different range of meaningful sounds which men and monkeys can make. The connexion between the physical development in the vocal cords and that in the brain and nervous system is close and subtle. I doubt whether the two can be separated.

We come back to the basic fact: monkeys do not speak and with their physical equipment they cannot. Men do and can.

Man has been characterized most distinctively as speaker and toolmaker. Exactly the same considerations apply to tool-making as to speech: the muscular dexterity of the hands and the accompanying developments in brain and nervous system.

So far, I have tried to highlight what we mean by *social* through contrasting the nearest thing we can find to society outside the human species. I now want to tackle a much more difficult problem, and that is the relation between society and the individual. I hope I have made it a little clear what we mean when we call man uniquely social. I now want us to find out how society is to be distinguished from ourselves.

'When we touch ourselves we feel ourselves being touched and we feel the touch of ourselves; when we touch something outside us there is only a single reference.'² But this is still at the physical level. When we get into an excited hysterical crowd, such as those which gathered last month in Bukedi,* we become excited and hysterical ourselves, *if we have enough*

* The reference is to the riots which occurred in Bukedi, Uganda, in 1959.

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in common with the others in the crowd. We are carried away by the crowd into doing things, *in the heat of the moment*, that perhaps we never thought we intended. When we cool down afterwards, we may even *blame* the crowd. Yet what was the crowd? Only a lot of other people just like us, perhaps all blaming it just as we are!

This is the paradox of society. It is just ourselves and yet it is greater than ourselves. Many have been blinded and deluded by this into making society into an uncontrollable bogey. In the long run, we cannot control society only because we cannot control ourselves. But in the short run, also, we fail to control society partly because we fail to understand it. The great French sociologist Durkheim came dangerously near to giving society an existence independent of its members. He considered that the group was causally prior to its members, while others might contend the opposite. There is really no point in arguing about this, for it is a typical chicken and egg question. In the parallel case of the State, the exaltation of the institution has of course had most dangerous consequences in blessing fascism and autocracy. It is a prime article of faith for liberals and democrats that the individual comes before society and the State.

What is required here is not preaching and argument, but empirical study. I think a right statement is that any human society, and *all* human society, is a product of the activities of all its members, present and past. Society is not greater than its constituent parts, taken collectively, but it is certainly greater than any one of them. This seems to bring us to the question of social determinism.

The individual can only defy society completely by moving out of it, and that in the end is suicide. The influence of society is extremely flexible, but I doubt whether any person can evade the influence of his society very far. The trouble is that both individual persons and different human societies are immensely variable as we know. Consequently, the influence of society upon the individual appears at first sight undefinable and unpredictable. We are probably not so much interested in whether society influences the individual, as an

abstract principle, as whether we can discover anything definite about the way in which it does so. We should respect social science if it could formulate laws of universal validity as the physical sciences can. But can it?

Water boils at a certain temperature, but at a different one if you are up a mountain. Objects fall vertically, but not in outer space where the term vertical has no meaning. So what is left of the universal laws of the physical universe? I am parodying physical science, of which I am woefully ignorant, only in order to press home the point that laws only operate in very precisely defined conditions and are no more universal than the incidence of such conditions. So I think the distinction between the laws of physical and social science is a matter of degree. Social scientists themselves disagree about this. Some are ambitious in aiming at the establishment of laws. Others consider that our task is more like that of history, in analysing the interrelatedness of past events, so that we understand more clearly why things happened in the way they did, *after the event*, but are prepared to accept some sequences as unique, without attempting to draw conclusions of predictive value.

The genius of men like Copernicus and Newton led many people to the comfortable feeling that we lived in a known universe working on knowable principles. The smashing of the atom smashed that illusion too. But it is important to note that the greater *relativity* of our view in no way detracts from the stupendous importance of the increased knowledge.

Geologists can tell us a great deal about the behaviour of the earth's surface. They can make good guesses as to where uranium, coal, or water may be found. They are well-informed guesses, but they are often wrong. Boreholes are sunk for water and none is found, or it is found and later it runs dry. Social science is not so very different. We know a great deal about what happens when an earthquake occurs, yet earthquakes continue to take us by surprise, with catastrophic consequences. The structure of the volcanoes near Lake Kivu is explained to us, but we are not told when or precisely where the next one will appear. Bukedi District is like the

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Kivu lava field. Anyone who had studied it knew that it was essentially unstable. Perhaps, if the authorities had thought it worth while for a sufficiently careful analysis to be made, it would have been possible to foresee when it was becoming overwhelmingly likely that Bukedi would erupt in violent social disorder.

But surely human freedom is something nobler than the unpredictability of earthquakes and volcanoes, or the random mutations in a stream of particles? I do not want to get involved in the hackneyed argument as to what freedom means: is it the service of God, or doing what you like, or 'self-government now'?

I believe in freedom, but it is partly a matter of personal faith. As a sociologist I know that much of what is thought freedom is a complete illusion. Both individuals and groups are all the time presented with choices and they make real decisions. But all this occurs within a framework which is very largely determined. The framework is partly in us and we are part of it, so that we are frequently oblivious of it. A limited freedom of choice exists for the individual because of the wide variety of human societies and institutions, which permits a real though severely limited choice in individual decisions, while the broad outcome is already determined by the mass inertia of society. Democratic elections in Britain or America are a very good example of this. Here we should find the very epitome of free choice. But what happens? The vast majority of voters vote as their fathers did and a switch of five per cent. from one party to another is a landslide victory. Yet the voters think they choose! But let us not be depressed, for we must still consider the collective ability to choose between one government and another without violence as one of the most magnificent achievements of the human spirit.

Much the same is true of a man's choice of religion. This above all things should be a matter for the individual conscience. Yet what do we find? Most men are conventionally attached to the systems of belief and the religious organizations to which their fathers belonged. Although most people

in East Africa have only recently adopted one or other of the world religions in place of a tribal religion, we already find a remarkable rigidity setting in. For the vast majority of people we find that where parents are Muslims children are Muslims, where parents are Roman Catholics, children are Roman Catholics, and so on. Radical conversion from one faith to another affects only a minority. Even loss of faith, though frequent, usually leaves a person paying lip service to the faith of his fathers on many conventional and public occasions. So human freedom of choice seems to operate within very narrow limits.

This takes us back to modes of upbringing. We cannot in fact be reared simply as human beings, as citizens of the world or anything grandiose like that. We have to be brought up as Ganda, or English, Kikuyu, Luo, Gujerati, or Sukuma. This is the only upbringing our parents know; without it we should perish and by it we are bound.

Take, for example, the choice which a student has to make between Arts and Science subjects when he comes to Makerere. It is meant to be his individual choice, but how free is it? If he did not do Science at school, or did not do well in it, he has little chance of taking Science at Makerere. He comes already encumbered by his own previous decisions and by the limitations or deficiencies of his past environment. Looking at a three-year period, I find that the numbers taking Science were successively ninety-six per cent., ninety-one per cent., and ninety-two per cent. of those taking Arts. This illustrates the fact that a host of individual decisions follow a very similar pattern year after year. In the wider society this means that, for some purposes, we are justified in ignoring individual idiosyncracies and dealing with the structure, as something independent of them.

It is to the regularities in such structure that social laws would apply, if anywhere. I have rather minimized the differences between physical and social sciences in this respect, because I feel that, while some social scientists make exaggerated claims, which they cannot substantiate, on the other hand the general public is sometimes blinded by physical

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science into thinking it more omniscient than the scientists themselves would claim. John Stuart Mill remarked over a century ago that because of 'the complication of causes',³ and the impossibility of insulating the variables concerned from the large influence of extraneous factors, no social laws comparable to those of physical science can be established. The potential complexity and variability of the social world is such that it is unlikely that empirical experiment could ever fully catch up with it. Experiment in the full sense of the physical sciences is impossible, because we cannot normally move human beings about like chessmen, or put them in cages like guinea pigs, nor should we wish to do so. We have to choose real situations, or samples, which provide empirical controls, and this is much more difficult.

In physical science the investigator typically marshals all the variables himself and sets them up himself in different combinations. The social scientist has to find all these different combinations actually occurring in nature, or rather in society.

It is, then, the sheer number, complexity, and constant variability of social factors that makes it impossible to establish social laws of a precision and generality comparable to those of physical science. Perhaps if we drop the pretentious term 'law', and speak rather more humbly of principles of social organization, we shall find that such principles can be established, that they have a very wide application, and that knowledge of them is very necessary if any intelligent approach is to be made towards the problems of social life.

I have always noticed that, in conversation about social laws or principles, discussion usually takes place at a high level of abstraction and there is a very marked disinclination on the part of all concerned to give any concrete example of what they are talking about. I am going to stick my neck out and explore an example.

The principle I want to examine is that of *segmental opposition*. It has an extremely wide application both in the simplest and in the most complex human societies. There

were African societies, such as the Nuer in the Sudan, the Kiga and Gisu in Uganda, or the Luo in Kenya, and many others, whose unity depended on this principle. These were societies dominated by kinship. It was not only family life that took place within the context of kinship, but the bonds of kinship were relied on to secure peace and order at the highest level. There were no powerful chiefs, no formal courts, and no source of authority which was not indirectly derived from kinship. Harmony in one group was secured by the necessity to stand together against another. Small local groups expressed their rivalry in a friendly way by wrestling or playing traditional hockey against one another. Larger groups fought one another with sticks in case of dispute, but their sense of solidarity, engendered by mutual reliance in defence against other still larger groups, prevented them from using more dangerous weapons. Still larger groups fought one another with spears, but paid compensation in case of injury. The largest groups fought without restraint when they became involved in serious disputes, and they recognized no obligation to compensate one another. If they wished to restore peace they had to call in a ritual specialist to arbitrate and reconcile them. If foreign tribes were raided, women and children might be killed and granaries destroyed, whereas within the tribe these things were against the rules. This whole process we usually call the feud, and it is known to have occurred in one form or another in very many societies all over the world, including the European nations. Its nature and wider significance were not fully understood until studied in detail by anthropologists in quite recent years.

The principle of segmental opposition is seen in many other contexts. It has been seen in recent weeks among the senior staff of Makerere College, when they have been tearing their hair over their quinquennial estimates. Here we had better call it gentlemanly rivalry rather than feud. Members of each Department have made their plans. At the next higher level, these have been co-ordinated within each Faculty and the plans of all the different Faculties have had to be brought together and reconciled by the College as a whole. The process

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has intensified feelings of common interest at every level: the interest of the College as a whole in the sound development of university education in East Africa; the interest of each Faculty and each Department, at their different levels, in the proper evolution of their subjects. This heightened sense of purpose could not be attained but for that degree of proper rivalry and competition, whereby each Department knows that it is on its mettle to present the best possible case to its Faculty, each Faculty has to argue its claims in the councils of the College as a whole, and the College itself has to convince the East African territories of the wisdom and desirability of its overall plan.

The same principle has been seen operating throughout history in political alliances between States. Lamentably enough, the highest pitch of national solidarity is seen in nations at war, when the hostility of one State to another imposes a desperate unity within each.

It will not have escaped you, I hope, that there is another difference between the segmental opposition of the Nuer feud and of the Makerere staff. As head of a Department in the Arts faculty, I am bound in solidarity with my colleagues in that Faculty, to oppose any outrageous demands that Professor X may make for another Faculty! But this does not mean that I have to oppose Professor X in other spheres of life. But in a kinship-dominated society those who are not kin are regarded not only as foreigners, but as enemies, from *all* points of view. However, this is not quite the whole picture. In traditional tribal society you may be dependent on your close kin for your safety and your very life. You cannot and dare not default in your loyalty to them. Yet through them you may be involved in a feud with another group of people whose daughter you have married. Or even in some cases, you may be called upon to support your neighbours against your kin, or your kin against your neighbours. So far from such conflicts of loyalty being a bad thing, they give us a further key to social solidarity. The man forced by his kin to fight against his wife's people or his neighbours, is bound to have an interest in securing a peaceful settlement in order

to extricate himself from his impossible situation. Once again, do not think that this simple illustration has reference only to uncivilized people, for it is writ large in the social relationships of every human being.

In a kin-bound society, we find that the loyalties and activities which are directly or indirectly based on kinship absorb a great part of a person's life. But even within the kinship system there are many tensions which pull people in different directions. There is a person's primary loyalty to the family into which he was born, and the extension of these primary loyalties to the family into which he marries. Then there may be loyalties to neighbours, who may not all be relatives. So that even in the simplest situation there are already cross-cutting currents of rights and obligation, which prevent any one conflict of loyalties from tearing society apart, because on either side of any such conflict there are people who are tied together in other ways which force them to seek a settlement.

When we come to more complex societies, such as modern industrialized nations, the basic pattern is the same, but new features are added. A person has not only his close relatives and neighbours, but many other separate sets of people with whom he is to some extent bound by common interests, such as those in the same occupation, of the same educational level, or from the same school, people of the same religion, of the same class and general way of life, members of the same clubs or with the same hobbies, and a whole host of other friends.

So we see that in the simplest situation the unity of a small group is enforced by its opposition to other small groups, while at a higher level all these small groups are themselves forced into unity in opposition to other large groups. In some societies cohesion is based on a single system of groups articulated in this way, but in most societies there are many different sets of groups, all operating on this principle, each uniting and dividing different categories of people, so that in every situation the forces which divide people have the positive value of uniting others together, while those whom they

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divide are themselves drawn together by other cross-cutting forces.

'The whole system depends for its cohesion on the existence of conflicts in smaller sub-systems.' 'Men quarrel in terms of certain of their customary allegiances, but are restrained from violence through other conflicting allegiances which are also enjoined on them by custom.' 'Tight loyalties to smaller groups can be effective in strengthening a larger community if there are offsetting loyalties.'⁴ As T. S. Eliot said: 'Everyone should be an ally of everyone else in some respects, and an opponent in several others, and no one conflict, envy or fear will predominate.'

I have laboured and harped on this point and I want to draw one final conclusion from it. We have seen that the net result of the variegated pattern of interacting conflicts of loyalty is to tie people together into a community, not to pull them apart. The converse is also true, that if conflicts of loyalty all fall at the same point, instead of cutting across one another in many different directions, it is then very difficult to achieve any sense of unity or community. If the distinctions and sense of difference based on skin colour, ethnic origin, and kinship; language and general culture; wealth, occupation, and education; religion and neighbourhood, *all* cut through the population at almost the same point, and tend to divide and classify it into the same compartments—such a population is in for serious trouble.

We have unhappy examples of this, in racially exclusive clubs and in other associations which unwisely draw attention to racial distinctions, such as the Railway Unions or the Civil Servants Associations in some multi-racial countries.

I surely do not need to press home the extreme and urgent relevance of this principle for East Africa. In a population faced with this danger, the cardinal principle of policy should be to blur the lines of division at every possible point; to ensure that the sectional loyalties which divide at one point are countered by others which divide at another. The economists will tell us that no social policy is any use without the money to implement it. It is also true that it is impossible

to maintain or increase production without a minimum level of consensus or common purpose as a basis for economic effort. The hard lesson seems to be that common purpose is not generated by talking and preaching about it, but by fostering common interests which cut across existing divisions. Where common interests cannot immediately be discerned, means must be found of blurring the lines of division until they can. Recent events in Uganda suggest to me that this policy lesson has not been learnt yet.

The purpose of this digression has been to take one fundamental principle of social organization and to demonstrate its meaning, its wide comparative significance, and its immediate practical relevance. If I have succeeded in this at all, I have also shown what relevance intensive studies of simple and even illiterate African peoples may have for the modern world, in shaking the student out of the rut of his usual preconceptions and enabling him to discern the working of important principles which can be traced elsewhere in much more complex situations.

Man is a social creature because of the length of his helpless infancy, in which he is dependent on training by his fellow human beings. This training depends entirely on the learning process, conducted through language and of necessity requiring stable groups such as the human family or kinship group to enable it to be carried out. Schools and colleges are merely an extended provision of this fundamental need. They show clearly that the problem is definitely one of social and not of physical maturity, since the educational process now continues, for many, long after the attainment of physical maturity. In Tudor England the undergraduate might get his degree at the age of fifteen, but by the time we all need doctorates of philosophy before we can earn our bread and butter it will be taking each of us a quarter of a century to become socially mature.

What is conveyed to us in this learning process of upbringing and education, whether in school or not, is culture in the widest sense of the term. And culture is the technique of living in society. Like any other accumulated body of know-

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ledge, it has to be transmitted in a standardized form. There is room for deviance and originality in detail, but in the main it has to be accepted as given. Each human infant is born into an already working system of social relationships. He is given no chance of starting from scratch, and would in any case be incapable of doing so. Without knowledge of the body of culture transmitted to him he would perish. So the urge for innovation has no clean slate to work upon, it has to work against the great inertia of the whole mass of already accepted culture. Through the transmission of culture human beings learn to take their full place in society. By the time they do this they are already moulded to a very considerable extent, and so the constraining influence of society on the individual is very great. It works as a force independent of the individual to the extent that it already exists at the birth of every human being and has to be largely accepted as given in the course of upbringing.

I may seem to have overemphasized the static nature of society. Naturally, it is too complicated for me to convey a complete picture in one go. But it is essential first to grasp the great weight of influence which society brings to bear on every individual, and then it is possible to examine the ways in which change comes about. It does so because no society is ever really static, or in complete equilibrium. There are always the conflicts of loyalties of which I have spoken already, and an ever varying balance between them. Fundamentally, one can say that change must come by working through the processes of society and not against them. By altering the balance of present forces, change may be induced in the desired direction. The would-be innovator who ignores this is more likely to be broken by the mass inertia of existing social relationships and the accumulated weight of culture. When the conflicts within a social system become too great, a revolution may sweep the greater part of it away, as in Russia. There will always be some persistent continuity, especially within the smaller domestic groups of the family and kinship system, but the wider edifice of pre-existing society may be largely destroyed, and it takes at least a generation, perhaps many, of

great hardship and uncertainty to build up a new system with any degree of order and stability. The paradox remains that man, collectively, past and present, creates the social system in which he lives, while individually he must accept the system as he finds it.

The social reformer can always alleviate distress. But to remove its cause he must understand the forces at work in the situation and mobilize opinion behind those forces already at work which may gradually shift the system in the required direction.

1. E. H. Sturtevant. *An Introduction to Linguistic Science*, New Haven, 1947, p. 2, quoted by M. J. Herskovits, *Man and His Works*, p. 440.
2. W. J. H. Sprott. *Human Groups*, Penguin, 1958, p. 24.
3. J. S. Mill. *System of Logic*, 8th ed. (Peoples), 1886, pp. 571 ff.
4. Max Gluckman. *Custom and Conflict in Africa*, chap. 1 *passim*.

11: Political Animal?

IT was Aristotle who made the remark from which the title given to me for my lecture is derived. 'Man,' he said, 'is by nature a political animal.' If I understand him correctly, he believed that it is his habit of living in political society which distinguishes man from the rest of animal creation. If, therefore, we could understand something of the nature of that society, then we would understand something of what makes him Man—higher than other animals, but a little lower than the angels.

What Aristotle took for granted is that the State is a natural adjunct of Mankind; only within it can we attain our true stature. Man, we know, *can* live apart from the State, but our very words 'civilization' and, more remotely, 'politeness' come from words meaning 'the State'. When we speak of a person as 'uncivilized', we quite properly suggest that he has missed something which would have enabled him to realize himself more fully; the lack of it cuts him off from that section of the human race which claims to possess a civilization. The Greeks even went so far as to describe a person who did not exercise his right of full participation in political life as 'idiotein'.

In our everyday speech, we thus unconsciously assume the necessity of the State; until about a century ago, the idea was never seriously challenged. I do not myself quarrel with it, but in our own times the challenge has become a serious one, and I shall have to touch upon it later. Leaving this extreme case aside for the moment, we are left with a wide range of possible relationships between Man and the State which may be summarized as a variety of answers to the question of whether the State was made for Man, or Man for the State. In my own view, the answers we ourselves give must depend on our idea of the nature and potentialities of Man, and on

the way we think his mind works. I shall go on to suggest that we shall in fact have to probe even deeper than this.

Most of what we consider valuable in Western culture we derive from ancient Greece and Rome. The Greeks were busy laying the very foundations of a civilization; as it developed, they realized the benefits which it could bring. The object of the Greek State was, first and foremost, to promote the 'good life' as opposed to the mere struggle for existence. Philosophy, Law, the Arts generally, were an integral part of this life, and their promotion was a primary function of the State. Thus, the State was introduced to the Western world as something creative, fulfilling a purpose essential to Man's very being.

Under the Roman Empire, the process went further. The highly-developed civilization, material and otherwise, of Rome was carried all over Western Europe and North Africa. It brought with it untold benefits: peace, economic and social progress, easy communications, and above all a highly-developed system of Law. In time, the State came to be seen not only as a means of creating and increasing these benefits, but as the very embodiment of them. It became the vehicle of a supernatural destiny, almost divine in itself, and presided over by an Emperor who was worshipped as a god.

Christianity resisted this overall claim of the State; it put forward other claims on human allegiance: 'render unto Caesar the things that are Caesar's, and unto God the things that are God's.' It propounded this tremendous riddle, but it left it to the individual conscience to find the working solution to it. There was no rejection of the State as such; St. Paul was proud of being a Roman citizen, and eventually he appealed to Caesar for justice. Yet the limits which Christianity implied on political allegiance brought Church and State into conflict; a conflict which resulted in the Roman Empire capitulating, and becoming officially Christian. Thereafter the facilities provided by the Empire served for the propagation of the Gospel. A Holy, Roman and Catholic Church worked hand in glove with a Holy, Roman and Universal Empire. For a time, it appeared as if the State were indeed an instrument for the Divine Purpose.

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The eventual overthrow of the Empire by pagan barbarians destroyed one of the props of this system. The Church was left as an outpost of order, law, and scholarship. The State as such had almost ceased to exist. In course of time, it was reconstructed under the tutelage of the Church, which provided the educated personnel needed for the Civil Service, and crowned Kings. The Middle Ages were dominated politically by the doctrine of the 'two swords'—the Sword of the Spirit, wielded by the Church, and the Sword of the Flesh, wielded by the State at the behest of the Church.

With the progress of civilization, however, the State began to develop a personality of its own. As it became Christianized, and the Church became wealthier and more preoccupied with the things of the flesh, the claims of Church and State came increasingly into conflict. Moreover, with its monopoly of learning, the Church was the sole source of political thought. 'Who will rid me of this turbulent priest?' asked a King of England. When some of his henchmen murdered Thomas à Becket, the King had to do a most humiliating penance at his tomb. Finally, in England, Henry VIII produced a practical solution by confiscating ecclesiastical wealth and declaring himself Head of the Church, thus asserting the supremacy of the State.

The Renaissance introduced a body of new thought at just the time when it was needed if further progress was to be made. In politics, it was in fact a revival of the Greek view that the State had a function of promoting good in its own right, and not by the leave of any other institution. Equally important, learning became secularized, and non-ecclesiastical thinkers began to examine the nature of the State. Machiavelli was one of the earliest of these, and to some the most notorious. He urged that if the State were indeed an instrument for positive good, then the standard by which it was to be judged was, not some moral precept, but its effectiveness in securing some real or imagined good. In so far as it was the provider of good, it was justified in taking every possible step to secure itself, and increase its strength.

Some weeks ago, Professor Andrews spoke in this series on

'Man, the Controller of his Physical Environment'. Until the end of the Middle Ages, the State had been taken as much for granted as rain or sunshine, sickness, or bad harvests. The idea developed that man might be able to exert some control over the environment in which he lived. Shorn of any mystery, the legitimacy of Government, and hence the circumstances in which it was legitimate to revolt against it, lay open to inquiry. Thomas Hobbes, whom Mr. Payne in his lecture called a 'cynic', but whom I prefer to call a 'realist', argued that so long as the State preserved life itself, it was folly to risk one's life to oppose it, however oppressive it was. His near-contemporary, John Locke, writing at the end of the seventeenth century, believed that Man was endowed with understanding, which would enable him to preserve his life even without the State, and to enjoy it as well. The State was merely a common-sense way of distributing the good things of life. The product of common sense, its form or its institutions could be changed whenever change was thought to be desirable. This line of thought justified the supremacy of a representative legislature, to which all institutions, including in the last analysis churches and monarchs, were subordinate. In creating the State, men had built an institution greater than themselves, but not a Frankenstein monster, out of the control of its creators. They remained free to re-create.

How can these views be reconciled? There are times, it seems to me, when order and the preservation of life are everything. But they are not sufficient in themselves to create a civilization. The experiences of the last War in Europe suggest that, once created, a civilization can exist independently to some extent of the State which begot it. It may even have the strength to resist another regime which seeks to destroy it.

I had as lief not live, as live to be
In awe of such a man as Caesar.

Having set free some of the potentialities of Man, it does not follow that the State can again confine them in their former prison. In Plato's words—and many of my listeners will hear an echo of them in St. Paul—Man becomes a citizen

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of an ideal State, laid up in Heaven. He strives to create the replica of that State here on Earth, but any failure to do so does not destroy the ideal. What Lenin called 'divine discontent' implies that, once a certain process is started within his being, Man will not rest satisfied with the environment which he finds, political or material, but will try to create a better one, the outline of which he carries within himself.

Here we can find the true roots of nationalism. This seeks to create a State which can carry out a particular set of ideals. Often enough, these are ideals which neighbouring peoples do not share to the full. A common religion, language or traditions, a common desire for economic advancement; these or other factors may cause people to try to set up a Government to foster them. Nationalism is meaningless until it is realized that governments and the State can fulfil a positive and creative rôle. Speaking where I am, it is not irrelevant to point out that it can only have meaning where there is a positive and creative idea which it seeks to realize; it is not simply an emotion. Self-government and self-determination can have no value in inspiring men and women to make the efforts necessary to achieve them. They are not ends in themselves, but means to an end, and only have relevance when it can be shown that they can throw the way open to the attainment of things known to be desirable. A Nigerian farmer to whom I once spoke believed that self-government would mean that he would no longer have to till his land. If many more were like him, 'independence' would be synonymous with 'starvation'.

As the idea becomes dominant that it is through the State that man can develop himself, there is a danger that we may return to the situation that, I mentioned earlier, arose in the Roman Empire. The State may come to be regarded as the source of human happiness, rather than as the means for achieving it. We may come back to the position of Thomas Hobbes, and believe that because of the good things which men receive from the State we are not justified in turning against it.

Though we may successfully avoid going to such an extreme, we have to accept the fact that, if we are to enjoy

the benefits which the modern world can bring us, we are bound to become increasingly dependent on the State. The complexity of the things which it is called upon to do for us often means that they are outside our own capacity to understand them, and equally outside the capacity of a representative legislature. Not only are they too complex, but they are also too numerous to keep pace with. The more exciting the vision we have of the benefits which the State can bring to mankind, the more we throw ourselves at the mercy of technologists—the men who have the specialized knowledge to make things work. They can declare the conditions under which they *will* work, and we are left to accept them. Often, they can only discover the price which will have to be paid only when they have embarked irrevocably on their task. In this world of distrust, many of the activities of Governments have to be kept secret from even the legislature. I would remind you that Britain exploded her first atomic bomb without Parliament even knowing that it had been made. Not a shilling of its enormous cost had knowingly been voted by the legislature. The disarmament talks at Geneva have been far more between teams of expert ‘advisers’ than between politicians or diplomats. They have discussed the technically possible, rather than that which is desirable from the human point of view.

Even were the machinery of Democracy able to control the State, and prevent possible excesses on its part, we cannot ignore Rousseau’s contention that when a man thinks politically, he discards criteria that would be important to him on other occasions. While what he calls for might be wrong if he sought it for himself, he may consider it right when it is for some generally good purpose, from which he may or may not benefit. There is always a danger that, when a man is not being selfish in what he seeks from the State, his other criterion will be what he imagines to be the good of the many. He is, in fact, trying to administer a sort of political medicine to his fellow men. In extreme cases, perfectly decent people may call serious suffering on the heads of even large minorities in the name of a general good. What John Stuart Mill

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called the 'tyranny of the majority' is a real danger in democracies; not infrequently it is found expedient that one should die for the sake of general peace and quiet, even though no fault is found in him.

If Man, as a political animal, acts in a particular way, and this may be very different from the manner in which he would act in other spheres of human relations, then I believe that to regard him as solely or even primarily a political animal is to misunderstand him completely. What he derives from the State, and what he owes to it, are incalculable, but they are not the most important things that he has. The State may be able to press its claims on him, and enforce his obligations to it, but it cannot successfully claim the whole of him. He may term it 'moral scruples', but whatever he calls it, sooner or later he comes to realize that he has obligations which are not towards the State, and may even be opposed to it. How can the State be prevented from making claims in these directions?

Constitutionalism provides a tempting answer; the idea that there can be a body of laws—the Constitution—which binds the State itself to do certain things, and to abstain from doing others. However, a constitution is produced by men thinking in political terms rather than in moral ones, and it can be changed in some way or other perhaps to suit political expediency rather than moral ideals. Its nature is legal rather than moral. The modern theory of the State presupposes that the Law is a means to serve an end, and not necessarily to embody some absolute truth. Morality deals in absolutes, and is often offended by the workings of legislation and the Law. Law is the product of Man the logical thinker, and it is a saying of lawyers themselves that 'the Law is an ass'.

Ultimately, constitutions fail to be safeguarded against State absolutism because they are administered by the State itself. Where they do in fact limit such absolutism, it is because the State is willing to accept such limitations. It can cease to do so at any moment. In the last analysis, the safeguard lies in the spirit, rather than in the letter of the consti-

tution. Britain, without a formal constitution, finds absolutism limited by that spirit alone.

My own contention is that the 'turbulent priest' must be allowed to fill the rôle from which he has long been excluded. He will continue to be troublesome, for he will provide the morality which political Man by himself lacks. He will continually be reminding the State of its own inadequacy, and thereby denying its claim to absolutism. The vigour with which the State that is trying to be absolute repeats the cry that you cannot mix religion and politics is an admission of its own inability to satisfy the whole of Man's nature. No State is so perfectly the servant of its citizens as not to need a warning from time to time, nor is it always so humble as not to claim for itself some sort of mystical authority, which can never be allowed to go unchallenged. The only body equipped to do this is one which is itself devoted to the understanding of mystical authority. I do not advocate a return to the situation as it was in the Middle Ages; I have already said that this was an impossible one. I am not suggesting that organized religion should claim power for itself, but that it has a duty to speak with authority.

State and Religion evoke similar emotions of loyalty in Man. Only for their State or their Religion will men die in large numbers. The politician will kiss an unwashed baby, or so it is said, to win the vote of somebody he would despise were he not a politician; there are many who will perform menial tasks for the poor in the name of their Religion. Sincere or insincere, either of these deeds has its beneficial consequences. The Tanganyika-type franchise or the Common Roll have caused not a few to act in a manner which would be endorsed by any reputable religion. Consciously or unconsciously, Religion will exhort men to be good citizens of a good State. When it tends to make them bad citizens, it is because of the shortcomings of the State, and its failure to come up to an ideal.

Rousseau's great essay 'The Social Contract', to which I have already alluded, sets out to cure the diseases of the State by considering the nature of Man the Citizen, and seeing

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how the State can meet his needs. As I said earlier, it is based on a recognition that political Man may act in a manner very different from the way he would behave in other capacities. The project of the essay is to 'take men as they are, and laws as they might be'. I have already implied that the State is unable to understand its citizens without the aid of other institutions, and that is why it is unable to satisfy all their aspirations. Most important, if they are to take proper political decisions, the citizens must be able to understand themselves. This, surely, is the primary function of education. In this context, I should like to draw your attention to the titles of all the lectures in this series. It is a very noble attempt to give a survey of Western humanistic culture, but all the subjects are those which occupied the mind of Man before the beginning of the nineteenth century. Before we can begin to tackle the great problems of our age, we are bound to consider such propositions as 'Man, the Seeker after Luxury', 'Man without Morals', and 'Man, the Godless'. These have not yet become respectable, and hence they have not been brought forward as subjects for serious study. At least politically, this is in fact Man as we have tended to see him over the past hundred years, and I put it to you that he is not only a proper subject for study, but that we are not going to get very far until we begin, all of us, to think about him.

If I am right in believing that one of the great responsibilities of the educationist is to enable men to understand themselves, so that they may model the State in which they live to suit their real natures, then the teacher is understandably going to be regarded with suspicion. The very success of his work is to be measured by his success in arousing a desire to modify the established order of things, at least to some extent. The inevitable tendency of States is to regard themselves as the arbiters of what is right, and this leads them to attempt to create a good citizen according to their own conception of what that is. They tend to take 'laws as they are' and to make men as they think they might be within that legislative structure. This is not a criticism of the State; if it succeeds in doing this, it is entirely the fault of the citizens. The good man is

automatically a good citizen, but he may have to modify the State somewhat before it is a fit place for him to live in. Indeed, the quality of his citizenship may be in proportion to his willingness to press for these modifications. You cannot make a person into a good man by concentrating on making him into a good citizen. At least in part, that is why the past century has seen a struggle between Church and State for the control of education. I shall not enter into the question of what compromise may be reached between them, or whether education should be a 'Third Force'. In times when the State has exceeded its functions, devoted educationists, particularly in the universities, have played a notable part in checking it.

I now return to something which has not fitted into the general pattern of what I have been saying for the simple reason that it rejects the whole idea of the State. I refer to Marxism which, while it claims to be a complete philosophical system, is, from our more limited point of view, only one of many political theories which arose about the middle of the last century, turning away from the idea of the inevitability of the State. They grew up out of a widespread discontent with the State as it was, which also manifested itself in nationalist uprisings all over Europe, and in British Chartism. There were some who believed that the State could never achieve what men had hoped from it, however much it was reformed. All this anarchist thinking is a fascinating subject for study in its own right, but Marxism, as by far the most important in our present day, is the only one that can detain us here. As I go on, you will gather why it fails to attract me personally.

Essentially, Marxism looks at Man as an economic animal, and views all other aspects of his nature as either subordinate to this or non-existent. Looking at history from this point of view, it finds that the State has never been an instrument for the well-being of the citizens as a whole, but existed to serve the interests of the economically dominant class; first the landowners, then the middle classes who lived by trade, commerce, and manufacture. At the time Marx wrote, he saw the

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working class rising to a position of supremacy, but believed that it would have a hard struggle to wrest power from the still vigorous middle class.

Thus, from the time of the Greeks onwards, there had been and would be a tyranny or dictatorship of one group within society over the others. It had formerly been of a minority over the majority, but would only be the more oppressive when the majority working class came to power. In Marx's view, the State existed because of social divisions, and its function was to perpetuate them. Eliminate the greed and prejudices which divide society, and drive home the lesson of the interdependence of Mankind, and the need for the State disappears completely. A proper integrated society is self-regulating, and does not need the machinery of coercion. All that is required is 'the administration of things'. An even more idyllic vision was that, with the 'withering away of the State', international differences would disappear, and the world would become one vast happy family, keeping itself in order by the sort of considerations that regulate a family.

Most of us can detect within ourselves forces other than economic ones which make us act as we do. Marx would maintain that these are illusions, even if they do die hard. The last function of the State is to kill these illusions, in part by enforcing a system in which human relations are entirely regulated, and in part by preventing what are believed to be false ideas from being taught. The State becomes the arbiter of the needs of the citizen, and of his capacity to contribute to the needs of Society by his work. It interprets the 'holy writ' of Marx and hence decides on what is right and wrong. Apart from the assumption that Marx was right, there are no strictly moral values. It is the State which speaks in the name of Society, and it is supposed to work itself out of a job. Earlier I suggested that the State must inevitably seek to perpetuate itself. Marx would say that it is not the State but the class which uses it as a tool which has the impulse towards self-perpetuation. However, the Russian Revolution took place nearly forty-three years ago, and the Soviet State still shows

no signs of withering away, though for the present it may be less oppressive than it has sometimes been.

Here we are in a dilemma, since we must make a moral judgement about the basic assumption of Marxism before we can talk about it. If we accept that Man is primarily an economic animal, and that everything else stems from this, then there is no more to be said. If we reject it, then the Marxist tells us that we are deluded, and leaves it at that. However, if we do reject it, then we see in Soviet Russia some of the dangers which any modern State is liable to fall into, and which I have outlined. In the Soviet Union, to question the validity of Marxism is a crime against Society and the State. Everything hangs on the certainty that Marx is right, for in time any alternative argument will have disappeared from men's minds. If, after the extinction of these alternative views, events prove him to be wrong, then Man will have to re-discover all those political truths which it has taken him until then not to find out, for the State would have to continue to exist. Hobbes would be proved to have had a truer vision of the nature of Man *and* the State; that any sort of State is preferable to none; that without it Man's life is nasty, poor, brutish, solitary, and the only mercy about it is that it is also short.

Even if we do not accept that it is either necessary or desirable that the State should 'wither away', we can still fall half-way into the trap that Marxism lays open for us. It is easy for us to commit ourselves for all time to the precise nature and functions of the State. It is only to the idea that the State can provide the best means for Man to develop his potentialities that we can pin our faith, and not to the way it is run. Nothing in this world is perfect, but it can come nearer to perfection by a process of trial and error. We are always in danger of confusing our loyalty by forgetting the distinction between the State and the machinery which, for the time being, runs it. The essential feature of trial and error is that there should be an alternative idea to be experimented with should the one that has been tried fail, as fail it must do one day.

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If there are to be alternatives to hand when they are needed, it is essential that there should be institutions which, while loyal to the State, are independent of its Government. The maintenance of vigorous organs of independent opinion are essential to the well-being of the State itself, and their suppression must lead to its eventual downfall.

Is it true that Man has the whole world to gain, and nothing to lose but his chains, as Marx would have us believe? Or is the ultimate human tragedy that Man may gain the whole world, and lose his own soul?

12: Seeker after Gain?*

IN the course of their working lives most economists come up against two sorts of public reaction to their subject. The first is from people who believe that economists have some special qualification for telling them how to get rich. This is, regrettably, an illusion: in every walk of life there are some who have a knack for making money, and some economists are good at it too. But most of us are, in this respect, no better and no worse than anyone else and our training does little to equip us with this desirable attribute.

The second sort of public reaction economists encounter is from people who accuse us of labouring under an illusion—the illusion that mankind cares only about money and about nothing else. We are accused of weaving our theories around an illusory Economic Man whose whole life is devoted to material self-interest, and failing to allow for the possibility that people may really care more about such things as the esteem in which they are held by their kinsmen, than whether a given course of action will make them richer. Economists are often accused of attributing everything to material self-interest, and of centring their theories around Economic Man, who is always perfectly rational; whose sole aim is to maximize people's income or their profit; who always seeks out the place where things are cheapest and, if he has things to sell, always finds the buyer willing to give him the highest price.

There is of course a grain of truth in all this, as in every widely held belief. Economists do tend to assume that people have some sort of system of ordered preferences, even if they are not 'rational', and they probably would not have much of

*I should like to acknowledge the help which my colleague at Makerere College, Mr. Ian Livingstone, gave me, and I also thank Mrs. Felicity Ehrlich for her help in turning the spoken word into the printable.

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a contribution to make to a society where people did not feel the lack of anything, or where all action was ritually determined. But economics is more than buying and selling or business, or the study of how to be economical or get rich quickly, though all these things enter into it at some point.

Desirable and convenient as a nice simple definition of a subject may be, it is often very difficult to arrive at, and certainly it is easier to say what economists do and how they think, than it is to define their subject. A definition that is commonly offered is that economics is concerned with the choices that people have to make because their means are more limited than their ends. It is not a wholly satisfactory definition, for at one end it arrogates more to economics than most of us would wish to claim as our proper field of study, and at the other end it leaves out some of the situations we study, where it is not really true to say that means are more limited than ends; but we may accept this as a preliminary definition, to be modified later.

Economics as a separate and identifiable discipline is about 180 years old. We usually date it from the publication of Adam Smith's book *The Wealth of Nations*, which appeared in 1776. Adam Smith was concerned with the very practical problem of discovering why it was that some countries seemed to have advanced more rapidly than others, and in the course of this search he was the first to develop a number of positive propositions or 'laws' that still form part of the apparatus of our subject.

Other people had, of course, been interested in economic questions before Adam Smith, but he was the first to identify economics as a separate discipline with its own set of questions, distinct from philosophy and politics on the one hand, and statistics on the other, and he is the first person to whom we can attach the distinctive label of having been an economist. His most famous successors have been David Ricardo, J. S. Mill, A. Marshall, and J. M. Keynes. It is no coincidence that they were all English, because in the study of economics England for a long time led the world.

In the last fifty years economics has itself split up into a

number of distinct branches, and most of us now have come to specialize in one or other. For instance, a specialist literature has grown up around international trade and around government finance and industrial relations, and it is as much as most of us can master to make ourselves thoroughly conversant with one of these branches of economics. But there are certain ideas or concepts which are shared by all and which are more fundamental than the particular aspects or specializations within the subject to which any one of us devotes himself. They are the basic concepts which distinguish economics from other subjects or disciplines.

The most fundamental is the idea of scarcity. Economics rests on the fact that there are scarcities. If all our needs and desires could be satisfied without the slightest effort then there would be no economic problem. If we could live on air alone and had no desire for any other thing, there would be no economic problem, because air is everywhere plentiful: it is not scarce, and we make no effort or sacrifice to satisfy our need for air.

But there are few things which are as universally plentiful as air. It is possible to draw an idyllic picture of the simple savage who is ever happy because his needs and desires are few and simple and are easily satisfied. But even in this simple form of life a man is likely to be faced by scarcity. If he wants protection he must build a hut and that requires effort and detracts from the time he has available for leisure. Or it may force him to defer making a musical instrument from which he anticipates much pleasure.

Wherever there is scarcity people have to make a choice, and it is these choices arising from scarcity which form the principal subject matter of economics. In fact economics has sometimes been defined as the logic of choice, although I myself do not use that definition because it embraces altogether too much: military strategy is concerned with making choices, but it falls outside the sphere of economics.

The idea of choice certainly lies at the heart of economics, but economics confines its attention to those choices which concern people's well-being. Here is an example of such

choice from everyday experience. A person has an income and with it he buys things. The first thing he buys is food because without food he would not long survive to buy anything else. Then he probably puts something aside for rent and he may need to replenish some of his clothes. Already he has made 101 choices. As he buys his food he chooses between matoke, maize, rice, lumonde, cassava, or combinations of them all; and his actual choice will be determined by two things—one is his relative fondness for these different products and the other is their relative prices. People around this side of Lake Victoria are especially fond of matoke, and that will always be their first choice when they go shopping. But if matoke becomes very scarce and therefore very expensive, then some may decide to buy something else, fearing that their whole income would be swallowed up if they persist in their diet of matoke. In 1954 when matoke prices in Kampala rose steeply, there was a large-scale switch to cassava and maize, the prices of which had not risen by so much. No economist would have been surprised, because what we call the law of demand, which is a part of economic theory, leads us to expect that when the price of a commodity increases less of it will be bought.

The choices which we make daily are of course infinitely varied. People on very low incomes have less choice in how they spend them than people with higher incomes. But even a man with £1,000 a year will have to use a part of his income to buy the basic necessities of life—food, drink, clothing, and shelter—yet he will be left with a surplus to spend on other things. And then he has to make up his mind whether to buy more books or beer, a wireless or a watch, and whether to go to a concert or a football match. Not only does a man have to decide how to spend his income but he has also to make a choice as to what part of his income he intends to save. People may prefer to defer their spending to a later time, either to enable them to buy some larger thing, or perhaps because they expect prices to be lower later, so that their money will be worth more. They may also save because they can get interest at, say, five per cent. on their savings.

Another choice that is open to people is that of foregoing a part of their income for the sake of greater leisure. For instance an actor may decide not to accept any engagement in the second half of the year, preferring the leisure to the income he could have earned. Or a farmer may plant less cotton than he could, preferring a leisurely life to a prosperous one.

Economists do not pass judgement on people's choices. As persons they may deplore drunkenness or regard money spent on football pools as money wasted. Each, as a person, has certain standards of value by which he regulates his life and judges those of others. But as economists we take other people's preferences as their own business. We do not ask 'What is Man?', but only 'What does Man Want?' Our business is to help them to make those choices which will best attain for them the ends they desire. If people have a high preference for leisure we try to help them to maximize their incomes during the short period that they are prepared to devote to work, by showing them which choices are for them the most advantageous or economic, although we will also point out to them that a high leisure preference is unlikely to be compatible with a high income. What goes for people goes for whole countries. They too, collectively, face choices, because the ends they would like to attain demand more means than are available.

How much a country can produce is ultimately determined by the resources available to it. There is for instance a limit to the amount of food that can be grown which is set by how much suitable land there is to farm. And a country which possesses no coal or gold has none to mine. Labour, too, sets a limit to the amount which can be produced, although it is true that this limit can be stretched by installing labour-saving machinery. Tractors can be used in some farm operations to replace manual labour, and one cement mixer is capable of doing the work of a dozen men mixing cement with shovels.

But tractors and cement mixers do not appear out of the mist, but have in turn to be made by someone. That *someone*

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who devoted himself to making cement mixers is not available now to do other things, and the following choice has therefore to be made—a country can go on producing the same quantity of things that it has always produced; or it can decide to produce less for the time being, and put some of its men to working on things like cement mixers, which we call capital goods because ultimately they increase output by much more than the amount of output that was lost while they were being brought into being.

What has been said about cement mixers can also be stated in a more general form. A country that wishes to develop manufacturing industries may have to accept a reduction in agricultural output as labour moves from agriculture into industry. Many people take it for granted that the development of manufacturing industries will make a country better off. It may do, but that cannot be a foregone conclusion. It is the function of economists to help people assess accurately the consequences of policies like those leading to industrialization, so that if such policies are pursued, they are pursued in the full knowledge of their probable consequences. It is not for economists to take decisions on such issues as industry versus agriculture. For one thing a country may have other reasons for wishing to engage in industrialization than to be materially better off. People may feel that industry confers prestige upon a country, or that the urban way of life is preferable to the rural.

Economists take the ends of policy as given and advise only on what means are likely to attain those ends in the most economic ways. For instance, if Tanganyika were to decide to build an atomic reactor, purely because it believed that this would increase people's incomes, then an economist would be bound to ask whether to build an atomic reactor was the most economical way of increasing people's incomes by a given amount. But if the reactor were planned primarily because it was expected to enhance Tanganyika's prestige in the world, then the economist would accept that and set about finding the most economical way in which it could be built.

It has been stressed that economics is concerned with

scarcity and that the existence of scarcity forces people to make choices between different ways of spending their lives and incomes; between different ways of allocating a country's resources, its land, its labour, and any savings that it may have been able to borrow from abroad and which are available for investment. But is it true that to have one thing inevitably means that one has to forego another? If one wants to develop industries is it necessary to take labour away from farming and so reduce the output of agriculture? In East Africa one often hears it said that there is a surplus of labour on the land and that there is in fact a good deal of unemployment.

This may well be so, but unfortunately it still does not relieve one from having to make a choice. Labour may *not* be scarce and there may *be* unemployment. But it is still not true of capital, as everyone admits. And so a choice has still to be made between using scarce capital to create employment in industry by building factories, or using it to create employment in agriculture. Both ways will create additional employment opportunities, and provided people are indifferent as between working on farms or in factories the economist will endeavour to assess which of the two is the more likely to make people better off. Only people seldom *are* indifferent as between working on farms or in factories. Supposing for some reason people have a strong preference for the urban way of life, even though it could be shown conclusively that farming would yield them a higher income, then the economist would accept the preference as given and concentrate on finding those ways of enlarging urban employment which would minimize the disadvantage.

'Man does not live by bread alone.' Economists accept people as they are. Some will be ambitious to maximize their incomes, and others may rather choose a small income so as to leave them more time to enjoy their leisure. Some will go all over town to find the cheapest shirt; others will automatically go to a certain shop in the centre of the town because that is where they have always gone; they know that they may have to pay a little more for their shirt, but

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they like the assistant behind the counter or they cannot be bothered to spend time looking around for bargains. Some regularly buy a certain brand of aspirin although they have been told that another kind is identical and a good deal cheaper. It may be irrational, but one knows better than to suppose that mankind is entirely rational.

Even if people are irrational, it is still possible to have a science of economics, itself rational to the very marrow, since the propositions of economics do not depend for their validity on rationality, but only upon the existence of certain uniformities of behaviour. It is our job to subject our propositions to continuous scrutiny in order to ensure that we do in fact correctly discern these uniformities.

Nor do our propositions depend upon an assumption that all action springs from a desire for material gain. It was shown earlier that a desire to build up industries may have nothing to do with a desire for material gain or for higher incomes, but may derive purely from motives of prestige. The positive propositions of economics do not depend upon the existence of some Economic Man whose sole aim in life is to have more income at the expense of everything else.

Because there are scarcities, people have to make choices. These choices are made on the basis of a series of preferences. What these preferences are is a matter of indifference to economists. So long as people have preferences and live in conditions of scarcity, there is need to study the range of choices open to them and to discover what combination of choices will lead people to their most preferred position. And this is the proper study of economics.

This course of lectures has asked 'What is Man?' Is there a distinctively economic answer to that question and do economists throw light on the nature of man? Or are we in a position to determine the ultimate springs of human action or behaviour? I am afraid not. Nor is our discipline built around some particular model of Man. We do *not* assert that Man is of this kind or of that, nor do we assert that Man is a materialist at heart, forever seeking after gain. In fact we really do not assert anything at all about Man. Economics is

not concerned with Man as a whole but only with certain aspects of his behaviour, those aspects which arise from the existence of scarcity and which therefore force men to make a choice between alternative courses of action. We do not say that men try to maximize their incomes or even their satisfactions, but merely that each man has preferences and when he is forced by a scarcity of means, his response to the choices confronting him will be determined by those preferences. Economics is concerned with Means, not Ends.

13: Child of God?

OF all the many questions we can ask about Man none is more important than the question: 'What is the purpose of Man?' What is the purpose of this creature who can be described in the many ways these lectures have suggested? Some people say that there is no purpose in Man. But if one night a man steals the wheels of a car or murders his grandmother, they say he *ought* not to have done it, and that seems to imply that he has some purpose after all, and is failing to attain it, something, as we say, to live up to. It is about the purpose of Man that I am to speak. What is his purpose, his problem, and his destiny as a child of God?

What is Man? We may well ask, for of all the problems which face Man this is the most problematical. On the one hand, Man is just one object in the universe, one creature among many living things. Yet he is not merely an object, for he alone, as far as we know, is aware of the problem. He alone is studying it. In some ways he is like the animals, yet at the same time he is different. The hippopotami in Lake Victoria do not discuss the question: 'What is Hippo?'; they do not even shout *Uhuru*,* but human creatures living round the lake shore do these things. There is another strange fact about Man. As he studies the universe he becomes more and more conscious of his own smallness on his planet compared with the vastness and wonder of the universe he studies, yet, paradoxically, it is he who is making the discovery. In his great book, *Man in Revolt*, the German theologian Emil Brunner has put this paradox in a single sentence: Man, he says, 'is a spirit which dreams of "eternity" and creates "eternal" works—and then the loss of a little thyroid gland makes him an idiot'.¹

* Freedom.

Nor is this the only way in which Man is distinct from other creatures. We can enumerate various ways in which he differs from all others: he cooks, he makes tools, and, most significant, he has gods. It seems that Man cannot do without God or gods, so that if he is not worshipping God he is finding some other object to venerate. The American writer, Joy Davidman, draws attention to the fact that idols can have many shapes, even that of a motor-car. While others may go to church on Sunday, the proud owner of the motor-car sings its praises as he lovingly polishes the bonnet:

I worship a Rolls-Royce sports model, brother. All my days I give it offerings of oil and polish. Hours of my time are devoted to its ritual; and it brings me luck in all my undertakings; and it establishes me among my fellows as a success in life. What model is your car, brother?²

It was the recognition of this infinite capacity in Man to find some object for his worship, some dominating values in life, that lies behind Luther's remark: 'Man has always God, or an idol.' The kind of god a man has will tell us a great deal about the kind of man he is, so much so that it has even been said: 'Shew me what kind of God you have and I will tell you what kind of humanity you possess.'³ If your god is Moloch, he demands of you human sacrifice, and so, in ancient Carthage, men cast children into the fire when they worshipped him. In our world, the process is more subtle and persons are sacrificed 'in the interest of the State'. But the principle is the same in Carthage or Kampala—the ends are said to justify the means and a man's value is measured accordingly. Christians believe that the more Man places himself at the centre of life, the lower his estimate of humanity will in fact be, whereas the truest humanism is to be found where God, not Man, is at the centre of all. Can we take the paradox of Man's unique nature a stage further and say that its final characteristic is Man's power to deny his own humanity, to deny, that is, the very essence of that nature which distinguishes him from the beasts. Man has the power of making moral choices and on this power hang infinite

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possibilities for good or ill. It is in this power to choose his destiny that Man is fundamentally differentiated from the other animals. G. K. Chesterton once made the point neatly: 'If,' he said, 'I wish to dissuade a man from drinking his tenth whisky and soda, I slap him on the back and say "Be a Man!" No one who wished to dissuade a crocodile from eating its tenth explorer would slap it on the back and say "Be a crocodile".'⁴

It is not, of course, only Christians who recognize this distinctive position of Man in the cosmos, nor were they the first to do so. When the thinkers of the ancient world of Greece and Rome observed this fact, they attributed the unique character of Man to the Divine spark of Reason within him. In due course this view was associated with the Biblical concept of Man as made in the Image of God and the meaning of this *Imago Dei* came to be explained very largely in terms of the rationality of Man. Yet important as is the truth that Man is a rational being (we could not discuss the question at all if he were not), this is not the profoundest way of describing what the Bible means by saying that Man is made in the image of God. In Hebraic thought, the emphasis seems to be on the personal character of human existence, on Man's relationship to God, and of Man's relationship to Man, rather than on an abstract quality that is said to be an attribute of either. It is Man's unique relationship with God, rather than his reason, that constitutes the distinctive element in his nature. The fundamental meaning of the Biblical assertion that Man is made in the Image of God is that God has created Man for responsibility. He speaks to Man and gives Man the power to respond. God gives Man a share of His own freedom and calls Man to work with Him. Man's reason is the faculty by which Man perceives and receives God's call to him.⁵

But Man does not only bear within himself the image of God. There is also within him a contradiction. He is at war with himself. Richard Hooker expressed the problem with typical mildness in saying that 'the best things we do have somewhat in them to be pardoned'.⁶ But it is St. Paul who

expresses the truth of this contradiction in our nature with a passionate insight. Down the centuries we hear his cry and recognize its truth in our own experience :

The good that I would I do not, but the evil that I would not, that I do. . . . O wretched man that I am, who will deliver me from this body of death.

Perhaps you know the story of the man returning from church who was asked what the sermon was about. 'Sin,' he replied gloomily. 'And what did the parson have to say about it?' they asked. 'He seemed to be against it,' said the man. Unfortunately, it is necessary to say rather more than that about Sin if we are to make sense of the Christian doctrine of man. First it is necessary to make clear that Sin is not the same as sins. Those particular examples of wrong-doings which we call sins are but symptoms. The root of the trouble is a fatal and mysterious contradiction in our natures, an ubiquitous wrongness: it is this that Christians mean by Sin. Sometimes the fundamental character of the problem is stressed by calling this all pervasive wrongness in our make-up Original Sin. But that term is much misunderstood and has become rather unpopular. Even among those who admit that something is at fault in Man's nature, there are many who say that it will be put right as with education and other social developments the human community evolves. Is there nothing wrong with Man that education and proper community development and upbringing will not put right? This is the subject of John Betjeman's poem *Huxley Hall*:⁷

In the Garden City Café with its murals on the wall
Before a talk on 'Sex and Civics' I meditated on the Fall.

As he meditates he observes the facts of life around him.

Barry smashes Shirley's dolly, Shirley's eyes are crossed
with hate,
Comrades plot a Comrade's downfall 'in the interests of the
State'.

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Not my vegetarian dinner, not my lime-juice minus gin
Quite can drown a faint conviction that we may be born in
Sin.

How exactly evil came into the world is a mystery which I do not pretend to be able to explain. The parable in Genesis of the Fall of Man would suggest that it is bound up with Man's disobedience to God. But while this provides a profound understanding of the problem of Sin in Man, it is not easy to see how it relates to the problem of evil on a cosmic scale, how it is connected, that is, with the tragedy of 'Nature, red in tooth and claw'. However much we are able to understand about the problem of evil in the universe, it still remains for us, as for St. Paul, the mystery of iniquity.

What then does the Bible teach us about this? First, it needs to be said that we are not obliged to take the account of Man's creation and Fall as literally true, rather it is truth in a literary form. The Garden of Eden is not to be found on any map, the events that are described as happening there can be given no date in history and I do not suppose that any of you have met a snake that talks. Before we read Genesis, it is necessary to decide what kind of knowledge we are after. If you want to know how the universe evolved consult a scientist, if you want to know the purpose behind it read Genesis. The account of the Creation and Fall of Man in Genesis is not meant to provide biological, historical, or geographical information. It is a parable about the Nature and Purpose of Man, what Man essentially is, and yet, is not. It witnesses to the deepest truth that we can know about ourselves; that we are created by God in His image, and yet we are not what He intends us to be. Something has gone wrong and there is in Man an inherent contradiction.

Let us consider how the Genesis parable reveals this primary truth. First, it asserts that God's purpose in Creation is good and that among all creatures Man is unique. Man is a creature, yet he is more than any other creature, for he is given the power to choose. He is given the power to choose to live in perfect obedience to God, which is perfect good. The power

to choose implies freedom and it is this momentous freedom that God gives to Man. He is free to obey or disobey God. Man is free to say 'No' to God, and this he does. It is Man's first disobedience and his ever-originating Sin, or Fall. What, we must now ask, is the essence of this disobedience? For in the answer to that question we shall find the essence of this fateful contradiction in our natures that Christians call Sin. It is the desire of man to be independent of God. Man refuses the freedom that is offered to him in obedience to God. Instead, he loses his freedom by asserting his independence of God. He falls for the temptation to be as God, knowing good and evil. That is the root of the matter, and it is a root that is in Everyman: what in our own day a psychologist has called the Godalmightiness in Man. All Man's troubles spring from this one root cause, that Man is in revolt against God. But this is precisely the truth that many do not see, so strong is the temptation to believe that this revolt is really the road to freedom and to Man's mastery of his own destiny. What a man believes about this matter is one of the crucial issues that will decide his fundamental attitude to life and his answer to the question: 'What is Man?' Everyman has his choice and the consequences of his choice are eternal:

'The Lord says, Thou shalt surely die.
The serpent says, Ye shall be as God.

'The story of autonomous humanity may well show us which was speaking the truth.'⁸

For more than 1,500 years of the Christian era men accepted the essential truth of this account of their nature and predicament. Man's sinfulness and his dependence on God were primary assumptions in all thinking. But gradually, in more modern times, the climate of opinion began to change. As men in the West discovered new worlds beyond the oceans and new worlds above, their self-confidence grew. In every branch of knowledge but especially in the physical sciences new and exciting discoveries were made, and within a few centuries, or even decades, Man's immemorial ways of life

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and thought were changing. The aspect of this astonishing process that concerns our present subject is the effect of all this on Man's estimate of himself, its bearing on the answer men give to our question: 'What is Man?'

As one by one Man mastered the secrets of the universe and solved its problems, his faith in his own power increased. He became, as it were, intoxicated with his own power to shape his own destiny. All Man's problems were felt to be due to unreasonable behaviour, or lack of knowledge, or the tyranny of priests and rulers, rather than to any inherent contradiction in his nature such as the Christian doctrine of Sin suggested. Indeed, the time came when such an idea was thought to be a positive stumbling block to Man's progress, an inhibition of which he must free himself. And so the song of the Blue-Dome worshipper, who on Sunday gets away from churches and orthodoxy and meditates on a hillside, 'mixing himself up with the landscape':

I have no time for stuffy church
My worship lies outside,
Beneath the dome of heaven's blue sky
With Nature, fair and wide;
Away from morbid introverts
Who moan about their Sin,
And though my pants
Are full of ants
I feel at peace within.⁹

In much the same spirit others have thought that what Christians call Sin was really the result of ignorance, that any blemishes in Man's nature would be removed by education. Contrary to the evidence of their eyes, they have proclaimed that 'we needs must love the highest when we see it'. But Christians ask, if this is true, why was Christ crucified? The Christian Church has better right to speak on the subject of education than any other body in the world, since it has been the pioneer of education. But the Church also knows that education alone is not enough. Even the best education cannot remove the contradiction in our natures, though it can

show it up and put before us the right ideals. Our trouble is that we need not only to perceive and know what things we ought to do but also grace and power to do them.

Others explain the wrongness that seems to be in men by saying that it is due to environmental factors, such as home circumstances, upbringing, and the type of community in which we live. As with education so with environment we must agree that here is a vital factor in the development of a person. Environmental factors probably exercise greater influence over us than any of us can realize; an influence so deep, and sometimes so tragic, that we can see the terrible truth in the biblical picture of the sins of the fathers being visited on the children unto the third and fourth generation. Indeed, looked at in this way, the bad effects of environmental influences can be seen as part of that mass of sin in which the whole of humanity is tied up, a Fall indeed. Poverty and disease, injustice and insecurity, should all be targets for our unremitting and greater efforts, but when we have done all the fact of Man's sin remains. Is it unreasonable to see a confirmation of the truth of this in the contemporary history of such welfare states as Sweden and England?

But behind these ideas that educational and environmental improvements were the remedies for any defect in human nature there lies a more fundamental assumption. The assumption that human nature is in process of evolution and automatic progress. This belief, in some shape, is at the root of most of the post-Christian and secular doctrines of man. It was, for instance, upon the evolutionary principle of survival of the fittest that Friedrich Nietzsche built his philosophy. To him, the Christian concepts of humility and service were marks of a slave mentality which would only be eliminated when the strong were free to use power and dominate the weak. Those who are not disposed to think that belief has much to do with conduct may note the fact that when Hitler wished to give his friend Mussolini a gift he chose the works of Nietzsche.¹⁰ Other philosophies, less obviously objectionable, but no less insidious in their effects, are built on the same evolutionary theories. So it is said that absolute values

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are non-existent and Man is neither guilty nor good but simply a creature in process of evolution. This evolutionary process it is suggested is satisfactory in itself. We may doubt whether such a statement would survive a strict examination of its premises, but insofar as it has any meaning, it would appear to suggest that something is to be valued simply because it occurs. This, as Professor C. S. Lewis has pointed out, sounds like the worship of success: 'Other philosophies more wicked have been devised: none more vulgar.'¹¹ Some may wonder whether the professor does not underestimate the wickedness.

And so we have these great divisions of opinion about the nature of Man. The questions at issue are fundamental, they not only decide the academic answer you may give to the question of 'What is Man?', they will also provide the basic assumptions that direct and give shape to your life.

Is it true that Man is naturally good; that with favourable educational and environmental factors he will automatically progress, that it is simply a matter of evolution? Such a view may be popular in the young rising countries of Africa, but consider what has happened in the West. It was not among backward nations that the evil political philosophies of the modern world arose, but from the heart of those reckoned to be in the vanguard of modern culture and knowledge. These events, together with the occurrence of the two great European suicidal wars and the forces they unleashed, give a hollow ring to Swinburne's cry: 'Glory to Man in the Highest, for man is the master of things.'

In suggesting that the purely humanist accounts of Man's nature have failed, I do not wish to suggest that the Christian and humanist interpretation of Man's nature have nothing in common and are simply in opposition. Indeed, humanism is deeply rooted in the Christian tradition. A belief in the infinite value of each person and the possibilities for his nature redeemed in Christ are corner stones of Christian doctrine. The difference between the Christian humanist and the secular humanist does not lie in the value they place on human nature, but in the place that they give to God. It is the

Christian conviction that humanism at its deepest and truest springs from a doctrine of God and God's dealings with Man; that a humanism which cuts itself off from its Christian roots cannot even survive in a hostile world. A few years before his death, the great non-Christian humanist and scientist Albert Einstein, reflecting on the tragedy of Germany, the home of so much that was most splendid in the humanist tradition of the West, had this to say :

Being a lover of freedom, when the revolution came to Germany, I looked to the universities to defend it, knowing that they had always boasted of their devotion to the cause of truth; but no, the universities were immediately silenced. Then I looked to the great editors of the newspapers, whose flaming editorials in days gone by had proclaimed their love of freedom, but they, like the universities, were silenced in a few short weeks. . . . Only the Church stood squarely across the path of Hitler's campaign for suppressing truth. I never had any special interest in the Church before, but now I feel a great affection and admiration for it, because the Church alone has had the courage and persistence to stand for intellectual truth and moral freedom. . . .¹²

What then is the purpose of Man? Is he destined to soar far above all other creatures only to be ruined by the fatal contradiction in his nature? Are we in the end, after the heroic triumphs of humanism, to be brought back to the estimate of Man put forward by that old cynic Thomas Hobbes? Can we say nothing better than that the life of Man is solitary, poor, nasty, brutish, and short? Each must give his own answer, and I must now conclude mine.

If it is conceded that God's original purpose in creating Man has been spoiled, His image in Man defaced, His love and purpose for Man rejected, it follows that we cannot know from our own knowledge of each other what a perfect man would be like. Each of us shares in the Fall of humanity and none of us can show another the perfect humanity, which the Creator purposed for us.

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Our first need, therefore, is to see what it is we are destined to be in God's purpose. We need a perfect Man to show us. An idea about a perfect Man is not enough, for it is part of the contradiction in our minds and of the darkness of our understanding that the best idea of which we can think will be infected by this very deficiency. Further, if it is true that the essence of our humanity is that we are persons (that there belongs to every human being an indefeasible dignity and worth, a personality which is his own) then, if this is true, our perfect example of a perfect Man must himself be a person in the fullest sense. A real live man of flesh and blood. A man who knows what it is to live and laugh and suffer and sweat, to hope and to know despair, to face temptation and finally death itself. All this our perfect Man must experience, otherwise he is not really like us. Yet in all this he must show us perfection. He is to be a perfect Man and his perfection must consist in this: he must do what Adam and every Adam has not done, he must respond to God in perfect obedience and love. I say he must do so, I mean he must do so of his own free will. He must freely accept the choice that God offers Adam and choose the obedience that is perfect freedom.

But even this would not be enough; even if we had such a perfect Man as an example of what we are meant to be, we should still lack the power to imitate Him. As we have seen, it is not true that 'we needs must love the highest when we see it'. We might yearn to love it and desire deeply to imitate it, but still because of Sin we should struggle only to find that the good that we would we did not, and the evil that we would not, that we did. Our need is not only to be shown what Man is meant to be, but for God Himself to break the entail of Sin and re-create humanity.

Christians believe that in Him whose name we bear is revealed true God and true Man. We believe that all history and existence moves to its consummation in Him, the Incarnate Son of God through whom we are presented before God the Father as sons. That when we cry "Father", it is the Spirit Himself bearing witness with our spirit that we are

children of God, and if children then heirs, heirs of God and fellow heirs with Christ, provided we suffer with him in order that we may also be glorified with him'.

And so we find the final answer to our question: 'What is Man?' in the answer to another question: 'Who is Jesus Christ?':

Our God contracted to a span
Incomprehensibly made Man.

1. E. Brunner. *Man in Revolt*, Lutterworth Press, 1947, p. 25.
2. Joy Davidman. *Smoke on the Mountain*, Hodder and Stoughton, 1955, p. 31.
3. Brunner. *Man in Revolt*, p. 31.
4. Quoted by W. H. Moberley in *Foundations*, p. 284.
5. See E. Brunner. *Man in Revolt*, Chapter 5.
6. Quoted by A. R. Vidler in *Christian Belief*, S.C.M., 1950, p. 92.
7. John Betjeman. *Collected Poems*, Murray, 1958, p. 188.
8. Brunner. *Man in Revolt*, p. 130.
9. S. J. Forrest. *What's the Use*, Mowbrays, 1955, p. 7.
10. See S. C. Neill. *Christian Faith To-day*, Penguin, 1955, p. 121.
11. C. S. Lewis. *The Abolition of Man*, O.U.P., 1944, p. 51.
12. A. Einstein. In the *New York Times*, 23 Dec. 1940, (quoted) by Sperry, *Religion in America*, p. 18.

14: An Immortal Soul?

THERE is a cathedral in the heart of Europe in which the monuments to the dead archbishops take the peculiar form of skulls surmounted by a mitre. This somewhat grisly reminder of mortality has a traditional place in Christian imagery, but I have always felt, in that Church, that the religion it enshrines is better represented by the text that stands in gold above the high altar: 'Thou hast made known to me the ways of life.'

I introduce these two statements, in different media, of the Christian religion so as to bring sharply before our minds the two main points of this lecture; the one, that can be so easily verified, of the fact of bodily death; the other which, if it can be verified, must be ascertained by non-material means. . . . I mean the life of the soul of man after his body has become a corpse and then a skeleton.

This, at least, we can be certain about, that we have a material body and that, given time, it will fall to bits. We are also sure that, concurrently, so far as the knowledge given by our senses takes us, our personalities will vanish. In this the human body is at one with the rest of physical phenomena, all of which is scheduled for dissolution. The most exciting problem, then, which Man can possibly face, is to determine whether this material universe of which the body is a part constitutes the entire total of reality. Matter is all, or matter is not all; there is the stark alternative. If it is not all and here is a reality beyond matter, is there any element in Man which belongs of its nature to this non-material reality? If there is such an element, what can we say about it?

Let us first of all examine the material world and see whether it itself can inform us about the existence of a world which is not material. At once we are confronted by what are

known as the anomalies of material things. Matter is measurable because it is extended and is, indeed, almost wholly definable in this way. But, if matter is extended, it is also divisible and, the more acute our methods of measurement become, so much the more divisible does it appear. What, then, keeps the divisible thing undivided? What imposes a unity upon something which, of its very nature, is a collection of different things? What makes one whole of the many parts? How very odd it would be if the very definition of matter, on investigation, demanded a non-material element in order that any material thing can be called one thing. But it is precisely this inadequacy of material things to explain their unity that has led philosophers to put forward their theories of the Forms of things. And by the Forms of things they do not mean the shapes of things; they mean a non-material element by which extended things are held in their unity so that they exhibit in particular examples a nature which can be assigned to other similar unities, though it cannot be assigned to their constituent parts.

There is yet another mystery about material things connected with their divisibility. The table at which I am sitting is changing, invisibly but indubitably, as I speak. Every atom of it is in motion and even in decay, yet it remains the same table until the dissolution inherent in its composition causes it to cease to be a table at all. A more intimate example of this process is also present. 'I am not the man I was,' I sometimes have cause to remark; this is true, in a sense; no particle of my body of some years ago is present today; but I cannot, for that reason, deny the underlying reality of myself that was and is still present, if only for the reason that it is I who make the remark. The desk remains and I remain, but what do we mean by the word 'remain'? It is not the same thing to say 'I remain' and 'I am'. For here is a great mystery. I cannot use the expression 'I am' with any scientific accuracy. My future is becoming instantaneously my past. My body, like the entire material universe, is a clock that cannot be stopped so long as it is in this kind of existence. So, with regard to myself, with regard to the entire material universe, one can only use the

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present tense of the verb 'to be' accurately of something that persists beneath the divisibility, beneath the change, beneath the irresistible succession of moments. If we say of a material thing that it 'is', we can only be accurately referring to a non-material element in its composition. 'I was,' I can say with absolute certainty. 'I shall be,' I can say with some confidence of a few minutes hence. But the statement 'I am' becomes obsolete as I utter it. Nothing, in the material order, can ever recover that 'I am' I used of myself so few seconds ago.

Material things have a possible future, but a certain past. Of most things in the material order we can trace the proximate ancestry, but when we ask for the ultimate origin we come up against another defect; they cannot supply a first parent of their own stock. Something non-material and non-changeable is required for the first birth of matter, an unmoved first mover. Any attempt to posit an infinite recession in material causes fails to do what we ask of it, to explain matter and material appearances here and now. For, if a thing never starts, it never arrives anywhere; an infinite recession in material causes will never allow the consequences to reach us in our own time and place. And it is the presence of material things here and now that we are trying to explain.

The soul of Man, then, if it exists, is the Form of his body; it is that which gives a unity to the enormous number of his material parts. Truly, if a Form is necessary so that any thing can be one distinguishable thing, then man has a Form. Is there anything that we can usefully say about it in the realm of argument?

When the event called death occurs to a human being, two things happen. The intelligence that was once within the human being ceases to be observable and the body begins to fall apart; it disintegrates. This suggests, at least, that the mind is the principle of unity in the body and that is what is meant by the phrase, so long in general use, that 'the soul leaves the body'. The soul is the same thing as the mind, provided that we include within the term 'mind' both intelligence and will. The expression used by theologians about 'losing one's soul'

is merely a forcible way of expressing the loss of supernatural life, a matter which we must here leave out of our consideration. The personality cannot lose its soul, for it is identical with it, though it is technically possible that the two might be annihilated together.

I hope that it was clear, when I was speaking of material things 'demanding' an immaterial element for their explanation, that the word 'demand' could only be used in reference to a mind investigating material things. You cannot investigate light with light. It would be truly remarkable if this mind that investigates material things and detects their basic immateriality were itself material! Here, to my way of thinking, modern techniques of investigation are greatly helping to establish the limits of matter. The detection of the vast network of neurones in the brain has thus served to indicate what functions of the brain are, in fact, physical and, as a consequence, what are non-physical. The tiny, but perhaps measurable, electrical impulses which accompany the sense-impressions which the brain receives from the outside world are activities of these neurones, when they are activated. 'But,' as R. W. Gerard of the University of Chicago says, 'a thought or a wish is no such event.' The intellect and will of man are not explicable by electronics. So, as the capacity of man to detect and measure material things becomes more refined, the presence of a world of reality beyond his measurements becomes more and more insistent.

We have, therefore, come to the point of asserting that there is a non-material reality and that the mind of Man belongs to this reality beyond matter. The question that now confronts us is: if non-material, is the mind or soul of Man immortal? At once we can say that this faculty, this Form, cannot die in the sense of falling apart, because it has no parts to fall into. If its functions were entirely coincident with the body that it unifies, then, on the dissolution of that body, it would cease to have any function, as the Form of a plant must do. And function is the same as being; a thing is what it does. But we have already seen that the mind has activities beyond the material order as it is through this faculty that we have

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been detecting the existence of a non-material order. Indeed, a tiny example will demonstrate this. The simplest activity of the mind will assert: 'This is a thing.' But the concept 'thing' is a concept of the mind and nothing else. You may meet a lion, a lorry, or a ledger in the material order, which are particularizations of this concept; you will never meet a 'Thing'.

If, then, the object of that faculty which we call the mind is beyond the possibility of dissolution and the mind, of itself, is of the same nature, I assert that the mind will continue to function so long as it has an object congenial to it. Reality is the object congenial to the mind and Reality equals 'What is'. To say that a thing really is we must, as we have shown, put it beyond the destructive influences of time, division, and change. The mind, the soul of Man, is of its nature immortal.

I am well aware that, in putting forward this close-knit philosophical argument, I am failing to appeal to the emotions and succeeding, perhaps all too well, in imposing a strain on the minds of some of my audience. I cannot apologize, because the nature of the theme itself requires an appeal to the mind and only to the mind. No other faculty can approach what lies beyond material things. But now, in the words of Paul Claudel, 'I appeal to the universe' to support my thesis. I appeal to the prehistoric, to the primitive, and to the present. The great bulk of the evidence about prehistoric man that survives does so because it was buried; deliberately buried, that is, with the bodies of what were incontestably human beings. Ceremonial and useful objects were laid in the tomb with them in those most ancient times and have survived because they were so buried. Why were they thus entombed, these objects? Because those who so carefully laid them there with the human remains were convinced that the personality of the dead being survived, that an element not bodily persisted; was, in fact, immortal. There can be no question that it was something other than the body that was so provided for; that material element was all too obviously not going to persist. In the rock-paintings of Lascaux there is even explicit reference in symbol to the immortality of the soul.

So, too, with the primitive races that survive today, the word 'primitive', of course, no longer having the slightest shade of derogatory meaning. 'It is taken for granted (by the Nuer),' says Professor Evans-Pritchard in his study of the religion of that Sudanese tribe, 'that people have some sort of existence after death . . . (they) say of a dead man "he has joined God", and "his soul has gone above, (only) his flesh was buried".' Such a certainty, taken absolutely as self-evident, could be paralleled among primitive peoples in every corner of the world. To dismiss such a conviction on the grounds that it was held by an unsophisticated people would be, to put it mildly, ill-informed. The intelligence of the Nuer with regard to the world of the spirit is elaborate, subtle, and integrated. They would regard the indifference to such matters in their civilized contemporaries as barbarously puerile. So many people nowadays know more of sputniks than of souls, less of Man's nature than the naked Nuer.

None the less, the lives of many of our contemporaries bring them frequently in contact with death and many of such people express the conviction that, though the remains of a dead person must be treated with respect, there is nothing important left. That is not, of course, to say that the important thing still exists, but there will be an innate tendency to say: 'The soul has left the body', with the implication, at least, that the soul has gone somewhere else. There will be a conviction, shared by millions of every race, country, and religious persuasion that the personality, loved or disliked, laughed at and talked about, still exists. 'Poor unenlightened humanity,' the disbelievers in the immortality of the soul will say, 'that has so long nursed so empty a delusion.' Poor humanity indeed, if that which is so universal and of the highest nobility in it is shown to be inhuman by a philosophy calling itself humanism! Does it deserve the name of humanism if it deprives the mother of her hope to see her dead child again, the husband to see his wife, the friend his friend? We must notice that no material biological urge or other motive can account for the repugnance felt for the idea that these vivid and irreplaceable works of art, the human personalities we

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know, are for ever extinguished. Dare we stigmatize the belief with the shameful word 'unprogressive'? Let us but remember that the enormous progress in material equipment which we have witnessed in the last two centuries has been the exclusive work of a culture in which the idea of the immortality of the soul has attained its most vital and lucid expression and has been its central personal doctrine. Where do political ideas of the freedom of the individual come from if not from the conviction that each living soul has a destiny beyond politics and that the statesman himself will be running the risk of eternal damnation if he injures the soul of his subjects? If the individual has no immortality, he can be used for any purpose in this life to which the authorities can constrain him. The most detestable forms of slavery, the designation of whole generations as cannon-fodder, the degradation of whole classes of the human race to ignorance and imbecility, all this can be justified if each man has not an inalienable heritage of immortality.

Splendid, you may be saying : we agree that the prehistoric, the primitive, and the present-day members of the human race unite in desiring and needing the immortality of the soul; but that is no argument that the soul is, in fact, immortal. I do not agree with those who argue in such a way. The proper study of mankind is God. This is an indisputable proposition unless we say that Man is not just a part of total reality, but is the whole of it or is completely emancipated from it, or is supreme over it. No one of these propositions can command a moment's assent. Man is a part of reality and I assert that no man is without, in his heart, the conscious or unconscious conviction that there is some element in the universe which is its centre, its reason for being. Religion is the name which we give to the relationship of each man to what he conceives to be the Supreme Reality. If he is insane, he makes himself that Supreme Reality; if he is not insane, he centres himself elsewhere. His relationship to that centre is his reason for being, his purpose and the heart of his nature; and nothing can be studied in isolation from its purpose and its nature. The proper study of mankind is religion!

For us Christians this Supreme Reality is what we call God. The nature of God, as we are equipped to argue philosophically as well as to assert on the grounds of revelation, is such that all things which are not God are completely and utterly dependent upon Him. The purpose of all things is a purpose which God alone determines quite freely; the nature of things is what God says they are to be. This nature is a specific form of service to God's glory: and the specific form of Man's service to God is by the exercise of his intelligence. Indeed, his intelligence, by its natural, spontaneous, irresistible activity seeks for the highest possible explanation of things. It classifies what it perceives and ranges these classifications in an increasingly comprehensive manner until it perceives the necessity of the Ultimate Explanation, or what we call God. Together with this contemplation of his own nature, God has given to Man the conviction, independent of argumentation, that it is to be an eternal activity; it is to go on after death. It is literally unthinkable, in the context of a consideration of what God and goodness can be, that such a conviction will be frustrated. The concepts of supreme purpose and supreme futility are irreconcilable. To anyone familiar with the tremendous system of Christian thought, so formidably equipped for its self-exposition and defence, this argument for the immortality of the soul is definitive.

The limitations of my thesis make it more important for me to speak of the immortality of the soul than of the nature of the soul itself. However, some consideration of this will emerge when we try to imagine what will be the sort of life that the soul in fact enjoys after death. I use the word 'enjoy' because I am leaving out the possibility that the soul in question has refused the purpose for which it was made, has deliberately perverted itself by proclaiming lies instead of truth; has degraded itself by being immersed in animal pursuits which it is equipped to recognize as anti-human. I am not thinking of a soul that has gone to hell because it has refused the great task of thought. I am thinking of a soul which has tried to be what it was meant to be and has achieved its intended purpose which the Christian calls heaven.

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How do we picture heaven? There are religions which, while proclaiming a sort of immortality for the soul, make it a merging into Nirvana or Brahman with loss of its own identity. For us of the great tradition the opposite is demonstrably true. In its immortal condition the soul is actually enhanced in its individuality. It becomes supremely and perfectly itself. 'I am not myself today' is something that we shall never say in eternity. We shall be as we were always meant to be, achieving the individual return of the divine love for which we were created.

We should also clear away a misconception that has, from time to time, made the prospect of heaven a dreary one in popular thought, the misconception that the spiritual world is like an inferior type of matter, an attenuation of fleshly existence. It is not like this at all. It is not a thinning-out of matter; it is a more vivid type of reality. Some of the ancient Greeks imagined the after-world as a realm of ghosts because they were such powerful materialists that they failed to see that, although in this life we can only imagine spirit as an abstraction from matter, we should not allow our imagination to mislead our intelligence, which shows us that spirit is a reality so intense that it is the source of all the vivid delights that ensnare our senses here. 'Tyger! Tyger!', wrote the poet Blake :

Tyger! Tyger! burning bright
In the forests of the night,
What immortal hand or eye
Could frame thy fearful symmetry?

In what distant deeps or skies
Burnt the fire of thine eyes?
On what wings dare he aspire?
What the hand dare seize the fire?

And what shoulder and what art,
Could twist the sinews of thy heart?
And when thy heart began to beat,
What dread hand and what dread feet?

* * * * *

When the stars threw down their spears
And water'd heaven with their tears,
Did he smile his work to see?
Did he who made the Lamb, make thee?

The answer to this question is 'Yes': yes, he did make the tiger and the lamb and, in the sight of that source of all created things, which is a spiritual source, we shall see together the tiger and the lamb, the athlete and the artist, the scientist and the poet, the saint and the sage, dawn and sunset, storm and tranquillity, the electron and the universe all in their intensest possible forms, in the sparkling Reality from which they derive every shadow of created colour and reality that they possess. Let us rid our minds of pictures of emaculate angels in wispy nightgowns in the company of insipid ghosts. That is not what we shall see; we shall see spirits as they are, naked intelligences in full action. It is a remarkable achievement even on the part of fallen human nature that religious people have sometimes succeeded in making the prospect of heaven dreary. It has even been suggested that there we shall occupy ourselves in singing hymns that go on and on and on . . . causing us sharply to suspect that we shall get bored. But this is a very earthbound confusion of eternity with endless time. Eternity is not a prolongation of time, it is the unimaginable absence of it. There will be no time in heaven; be very sure, we shall not be bored.

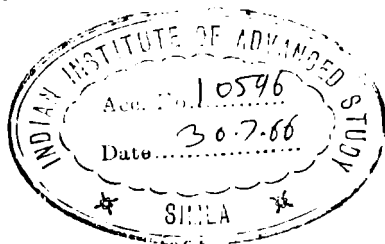
When we come to the end of this series of lectures entitled 'What is Man?' and ask the question all over again, we find ourselves able to say this. Man is the being who has planted a flag upon the Moon and has explored with his instruments unimaginable depths of space and isolated constituents of matter so small that they are just as unimaginable. Man is the being who has dominated a great section of the animal kingdom and bent it to his use; who has extracted from the bowels of the earth immensely beneficial materials and from who knows where the vast forces of electricity to serve his purposes. He has adorned himself with exquisite fabrics and colours, fed himself by the arts of cookery, learned to trans-

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port himself with prodigious speed and even safety above, upon, and under the surface of the earth. He has uttered words of almost magical meaning and rhythm and composed combinations of sound that wrap the hearer in a world of intellectual ecstasy. The arch, the dome, and the girder have housed sublime debates and rituals, courts, and conclaves, and in humbler dwellings have blossomed unnumbered idylls of domestic happiness and the intercourse of friends. Is not this enough? and the grand tradition of humanity cries out: No! It is not enough! I want to live for ever. The nebulae and the electron are measurably on their way to dissolution. The arch will fall, the empire dissolve; there will be no harmonies of John Sebastian Bach if there is no ear to hear them. I want, cries Man, to go back to the source of all these beauties, to see that which, because it created them, is more beautiful than they. I want a happiness which time cannot destroy by satiety or dissolution. I want eternity. I want to BE myself.

If thou canst get but thither,
There grows the flowre of peace,
The rose that cannot wither,
Thy fortresse, and thy ease.

Or, as the greatest of Africans, St. Augustine put it: 'Lord, thou madest us for thyself and our hearts are restless till they rest in thee.'



WHAT IS A MAN?

Edited by E. L. Lucas

This series of fourteen lectures was a tentative attempt by the staff of Makerere College to bring to their students' awareness the nature of man. They do not aim at providing answers to the riddle of man's existence; rather, they aim at posing the relevant questions and are therefore a good basis for discussion groups in the sixth form and among undergraduates. They proved popular to both students and the public, and most of them in this book are the shortened versions of the original lectures used by the staff of Makerere College in 1960 to meet popular demand.

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