

SCIENCE AND MAN

My part to-day is to show some of the practical consequences of the impact of science on society. To indicate results, however, without pointing out their causes would be of little value. I hope, therefore, that my colleagues in the papers introductory to these discussions will forgive me if I encroach a few steps on to the domain of principle, allotted to them, in developing my own domain of practice.

In three directions in particular has science exerted an important influence on society : in altering man's mental outlook, in aiding his physical welfare, and in changing his environment. My comments will follow these paths.

Science and the Mental Outlook of Society.

The most important of the effects of science on the mind of the community, so it appears to me, has been through the example of single-minded search for truth which is the hallmark of all genuine scientific work. The truth to be attained may be limited to a particular plane, with a corresponding restriction in its range of influence; but within that range the manner of the scientific worker's approach to the unknown is outstandingly direct and fearless, animated solely by the desire for truth.

But that brings in its train a second reaction on the mental attitude of society. The course of a scientific enquiry would be sadly hampered if the heart were allowed to sway the head. The man of science has to keep his intellect at white heat, but his emotions in cold storage, till the end of his search, when certainly the feelings may be powerfully stirred in the arrival at a satisfying conclusion. Now science has become so much a part of the social atmosphere that one of the more valuable products of its impact on the community is assuredly this reasoned and unprejudiced approach to those issues in ordinary life with which science concerns itself.

In all this, science can make clear claim to be an outstanding influence for good. Recognition of that claim, however, must be qualified by a two-fold criticism.

In the first place, to put personal feelings aside in dealing with the world of Nature is one thing; to set them aside when considering man at any level above the merely physical is quite another. To look consistently and logically with the intellect alone, divorced from the heart, at the principles and conduct of the life of men is to run

the risk of disastrous error, through this impersonal manner of approach to people who, whatever else they be, always are persons, not pawns to be moved to the right position, or blocks to be carved to a more pleasing shape.

In the second place, there is in human affairs, even within the strict domain of science of the natural order, a risk of error inherent in the assumption that the material, natural world is the province of science, and that the immaterial and supernatural is beyond its scope. This is the humility of a specialism which deliberately adopts a restricted sphere of interest and concentrates its energies within that more limited region. Such systematic concentration has its full justification so long as its limitations are not forgotten. It certainly has its abundant rewards, both in principle and in practice, inscribed in the records of science; and part of the effect of this outlook of science on society has been to develop specialism, and the rewards of specialism, at innumerable points of its contact with men. But the other side of the shield shows a deep flaw. A science which limits its concern to the natural, even if at first from humble recognition of its incapacity to deal with the supernatural, can all too readily illustrate the old saw of 'Out of sight, out of mind,' first by sliding into a forgetfulness of any aspect other than the material one, and then by assuming and acclaiming that its view is all-embracing, and that there is no other aspect than the material. Moreover, the error is not limited to the negation of all other than the material; it distorts the outlook of science even within its self-selected domain of the material. That can be deduced from what would have followed, had science applied its own principle of intellectual search to the ultimate causation of the material world. It would thereby have found the fact of a God Who is Creator and Sustainer of the universe. Given that recognition of a supernatural Being, above all and in all, underpinning the whole of Nature, living or inanimate, science's own gift of honest thought would have shown that conclusions derived from the purely natural world must always be subject to correction in the light of the supernatural Being on Whom that world is dependent. The conclusions of science would thus have been tentative, not only in the accepted sense of being subject to any better natural explanations which might emerge later, but in the sense, generally unacceptable to science, of needing revision also for supernatural reasons. That attitude would have been evident not only towards man's mental life, but also towards his physical nature and all creation; for all share a dependence on that one omnipresent infinite Power. A science humble in this sense would not exclude the miraculous from its vocabulary. In man it would so recognise the

reality of that hidden range of being as to reject all conclusions infringing the dignity of his personality or the true freedom of his will, seeing that in these that deep element within man comes most nearly to the surface.

Before leaving this portion of our subject, a glance may be given to the more specific concern with the individual and social mind shown by the young but growing science of psychology. I would refer more particularly to that corner of psychology occupied by psycho-analysis, so often eyed askance through the unpleasant and largely fantastic sexual interpretation to which it has been subjected. Despite this, Freud deserves well of his fellows for the insight which he has provided into the fact, and into some of the contents, of the subconscious and unconscious levels of the mind. But the materialism which, in part from his scientific training, Freud showed in his interpretation prevented him from going far enough. He gave some of the truth, but not the whole, and not the most vital truth. For while it can be granted that the subterranean levels of the mind contain those unfaced crises of choice and decision refused by the will and rejected into that limbo of the subconsciousness which may be haunted also by primitive urges forbidden to civilised man, these levels of the under-mind contain something else, or rather, Someone else, of infinitely greater significance. For the transcendent God can use the underground passage of the subconscious to reach that inward portcullis of the mind which must then be opened by the man's own will if God is to enter. Were psychological science to add that supreme detail to its picture it would need to add also that the refusal of entry of particular past experiences into the citadel of the mind was due in fact to rejection of God's challenges to throw open the portcullis through a right reaction to those experiences. Psychology would have found at the root of psycho-analysis a religious issue, needing a religious solution.

Science and the Physical Life.

When we pass from the mental orientation of society to its physical life, we find humanity incalculably in debt to science for lifting from its shoulders a vast burden of bodily disease and pain, and for defining a code of conduct for the maintenance of recovered health. To get some slight measure of the total benefit bestowed, one has only to think of the myriads who have been delivered from death or from a crippled life by a few individual scientific achievements: such as the association of malaria with the mosquito, the tracing of the life-cycle of the malarial parasite, and its destruction by quinine, the relation of yellow fever to another species of mosquito, of sleeping

sickness to the tsetse fly, of typhus fever to the louse, of plague to the rat-flea. Consider how the chemist and the physiologist are glorified by the discovery of salvarsan, with its specific action on that gravest of man's scourges, syphilis: or by the more recent demonstration of the power of the sulphonamide group of substances to starve and slaughter within human tissues many varieties of intensely dangerous bacterial invaders of man! The discovery of vitamins, a quarter of a century ago, has revolutionised the science and art of nutrition; and to none can its importance be more evident than to us, maintaining our physical well-being in surprising fashion in a beleaguered island. Still again, the systematic education of mothers in housecraft and child management through official Child Welfare Centres is an admirable large-scale application of science to the maintenance of health.

Even in this outstandingly successful sphere, however, a blind spot can be detected in the ordinary outlook of a medical science which sets itself to heal a man of disease, and, having healed him, goes on its way rejoicing, conscious of a good work. Now, is that necessarily all that it should have done? A good work has without doubt been done, and the man's energies, till now absorbed in his fight against disease, have been released for fresh expression: but in what direction—for good or for evil? Will his renewed health necessarily react to the good of society, or may society come to curse the science which healed one who, being healed, has become the enemy of his race? Clearly there is needed an outlook beyond that of mere natural healing, to that of the supernatural use in the right direction of the man's released energies. That may not be the function of science itself; but it must not shut its eyes to the larger issue, and must be concerned to direct the man healed on the natural plane to the right source of healing on the supernatural plane. More, it must recognise how much the healing even at the physical level depends on a healing of a spirit whose troubled state is so often cause or concomitant of the physical deviation from health. Science, then, must work alongside religion.

Science and the Social Environment.

Turning from the mental and physical life to the surroundings of the individual and of society, we have the great increase in convenience, orderliness and seemliness, in beauty, comfort and luxury which science can bring about in the outward circumstances of man's life. This is by far the most obvious of the products of science's impact on the community. Its marks are evident on every side. So familiar is the fact that I mention it only as a salute of gratitude to

science as we pass, and I must leave it to you to fill in the manifold details of the environmental picture.

Science and Materialism.

I return to the issue already raised as to the specialism of science along a materialistic plane—a specialism which is justifiable so long as it recognises its own limitations, but which becomes misleading when it forgets its self-chosen restriction and regards its outlook as all-inclusive. Even that falsity of outlook, though sufficiently grave in itself, would be of comparatively minor consequence were it restricted to those actually engaged in scientific work. But the prestige of science, in its popular quasi-deification, is so immense that the outlook of its workers permeates society as a whole. While the man of science pursues truth on the narrow plane of matter, the at least implicit denial that any other plane exists spreads a corresponding influence throughout the community. Here then is one of the practical results of the impact of science: a materialistic outlook in society, a one-sided social life, a continual tendency to exploit the ideas and inventions of science to a materialistic end.

That influence has of course been mutual: a materialistic society has acted on the man of science, even while the man of science has pulled society still further downwards along the plane of materialism. Nevertheless, those scientists, religions or otherwise, who from the days of Sir Isaac Newton onwards have dissociated science from religion, have to bear their share of responsibility for the grievous result of a false dichotomy, as have the men of affairs in so far as they have similarly detached politics, economics, art, industry, commerce, the professions and ordinary daily life from a religious context. It is worth while to look at a few examples of the process in relation to science, to see how widespread and important is this mutual influence of science on society and of society on the thoughts and the creations of science, here leading to material indulgence or selfish self-expression, there infringing the dignity of person or the freedom of will of the more unfortunate:—

(i). *Scientific Inventions.*

The misuse, as well as the right use, of the inventions of pure and of applied science is very familiar ground to all, and I need only remind you of the evil as well as the good uses to which men have put such scientific inventions as the internal combustion engine, wireless telephony, the cinematograph, or the aeroplane. Again, industrial science has invented wonderful mechanical aids to agriculture, capable of relieving man of the heaviest physical drudgery and of

yielding more abundantly the fruits of the earth. But, with that as an asset, we have on the debit side the greed of man for gain, using those same mechanical tools, and science's parallel discoveries of more prolific and more disease-resistant crops, for the unbalanced large-scale agriculture which has resulted in earth denudation and the sterilisation of an alarmingly large proportion of agricultural land.

(ii). *Science and Family Limitation.*

In another direction applied science has provided, and a section of biological and of economic science has advocated, facilities accepted by large sections of the public as a boon, in spite of the empty cradle, the warped marriage, the divorce, and the social evil to which this particular invention has given rise: the mechanical or chemical contrivance used for the prevention of conception. I know of no more insidious poison than this practice, now so generally accepted by non-Catholic populations, in making the spirit insensitive to true values in life. The indulgence in the pleasures of sex without acceptance of its responsibilities can all too easily create a dullness of perception and an uncertainty of reaction towards moral issues in many other directions. There is all the more reason, then, that Catholics should most scrupulously avoid the remotest association with what to them is not merely an evil habit but a most grievous sin.

(iii). *Eugenics.*

In eugenics, science has applied its principles, with their limitations in perspective and their omission of the spiritual from the categories of the scientific, to the development of the 'best' breeds of men and women. In so far as this is made to be of practical application to man, I should prefer to call it a pseudo-science, something which, dealing with spiritual beings, believes that it is able to define a way of life, a selection for mating, which can meet the circumstances even while it omits the spiritual from its view. Other things being equal, the science of eugenics might plead some justification for eliminating the haemophilic, the congenitally blind, the physically deformed, the mentally defective, and so on, ignoring their individual wishes in the light of the greater needs of society as a whole. But other things are *not* equal. The physically hale and hearty, the mentally robust, the straight-limbed and clear-eyed, are not necessarily the greatest benefactors of the race. The saints have by no means always been those most robust in mind or in body; yet the general raising of the average, if by a process which might prevent the emergence even of some of the saints, could be a calamity

to humanity : as could also the emergence of the beast in man were that other dream of eugenics to come true here as now it seems to be doing in Germany, whereby the mating on purely physical grounds should be arranged between those adjudged physically and racially fit.

(iv). *Sterilisation of the Unfit.*

What would such a pseudo-science do with the unfit? Some it would sterilise, others it would 'liquidate' under the euphemism of euthanasia. In sterilisation of the unfit one is in effect offering further hurt to a personality, already unduly burdened by the injury which disease or its parentage or unhappy surroundings have inflicted on it, by persuading or compelling it to a loss of physical integrity. That is in itself a negation of justice : and its injustice to the individual leads to sinister consequences to society. Destroy the reverence for the individual personality in such a way, and with it the recognition of the duty and responsibility of the individual towards expression and control of that personality, and you inflict a wound on society as a whole. Eventually you undermine the security in body and mind of every member of society, the humblest and least protected first, and thereby make true social life impossible.

(v). *Euthanasia.*

Keeping its eye fixed on the natural phenomenon of prolonged pain, of incurable disease, of a wearing out of the body, this modernistic science offers the seemingly logical solution of ending the individual's life, of course with his consent. But such science forgets the supernatural side of the crisis involved in the patient's relation to his Maker, in the opportunity of final clearance of conscience; in the urgent and repeated reminder to do so which his pain or weakness brings; in the means of grace which comes with the faithful endurance of such pain as cannot be assuaged by the lawful processes of medicine; and in the influence towards others for their good created by his faithfulness.

A science unlinked with religion is too readily the tool of the lower appetites of man, because its conclusions are weighted with a materialistic bias. That it is already being used as a tool to such an end appears in the reports of the enforced death in Germany of the aged, the insane, the mentally defective, and, so it is stated, of those incurably injured in the war.

(vi). *The Idea of Evolution.*

An illustration of this materialistic bias occurs in the realm of ideas, when science puts forward its hypothesis of evolution to ex-

plain the present state of the world and the universe. That hypothesis applies to the physical world, to the material aspect of Nature and of man. At that level it gives a most enlightening panorama of a majestic sequence of events. But, since science limits its outlook to the natural, disregarding the spiritual, this hypothesis has no bearing on the spiritual life of man and has no light to throw on the spiritual relation of the elements of Nature within themselves, in their association with man, or in the relation of all to their Creator. Yet this idea of evolution is perpetually interpreted as applying to the spiritual as well as to the natural. The struggle for existence, which is one aspect of the suggested mechanism of natural evolution, just as action towards the physical welfare of the community is another aspect, is translated into the spiritual relations of man with man, so that competition in industry, the getting the better of one's neighbour, is interpreted as a natural and inevitable part of the evolution into a higher race. Further, it engenders an attitude of mind in which the upward evolution of society is a postulate of thought. The opposite view, of life as a crisis, with a movement upwards or a step downwards, individually and as a society, according as the individual or the social will obeys or disobeys at each moment the Divine purpose, is quite foreign to the texture of the modern mind. Society, under the influence of its science, has come to believe in gradual development, to disbelieve in sudden crisis, whether of the Creation, of the Fall, or of a divinely-effected Recovery. It affirms a gradual emergence from imperfection, with a reversion now and then to atavistic traits: it does not recognise the fact of sin.

Science and Religion.

This same attitude of authority in a region in which it is a stranger finds expression in the influence of science on the modernist religious view, in which the naturalistic ideas of science are applied to the spiritual realm of religion. There can be no miracles, says the modernist, for science knows nothing of these; there cannot have been a physical resurrection of Christ, for the dead body does not come to life; Christ cannot have been both man and God, for that is contrary to Nature; he cannot therefore have been more than a sublime human being. So a modernist theology, melancholy in its tenuity of belief, is a product in the theological sphere of that separation of mind from spirit which science has imposed on itself.

What might have been the impact of science on society, had it retained an association with religion? Perhaps the development of science would have been slower, would have reached some lower degree of specialised attainment than it has in fact achieved: not be-

cause religion is antagonistic to science, but because unsatisfied hunger is a most potent urge to attainment. A mind closing its doors on religion is hungry for it knows not what, and being hungry seeks satisfaction in a proportionately intense drive towards the secrets of a science which provides it with a substitute for religion. A science balanced by religion would, then, perhaps not have got as far as has been the case on the material side. But how much more balanced, more rich in significance, would have been its outlook! It would have provided an atmosphere in society giving positive and strong discouragement against the use of its discoveries in ways to the spiritual disadvantage, even if to the material advantage, of the community. It would have played its very important part in reducing that perpetual downward bias, with the perpetual disappointment which it brings in the results of human effort. So much has been lost by the dissociation of science from religion; and by so much has science lost of significance in its impact on society.

H. P. NEWSHOLME, M.A., M.D., F.R.C.P., B.Sc., D.P.H.,
Medical Officer of Health, Birmingham.

Owing to various circumstances it has been impossible to include in this number the final paper of the U.C.F. meeting, 'The Place of Science in Education,' by The Rev. Philip de Ternant. The omission of this paper from what would otherwise have been a complete symposium of all the papers read at the meeting is most unfortunate, but we hope to publish it in the following number of BLACKFRIARS.—
EDITOR.