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Social Ethics, or Present-Day Conflicts.

THE conflict between religion and science, which a few years ago seemed nearly extinct, has recently revived in another form, this time not so much on the theological as on the ethical side. Doubtless there is a kind of ignorant bibliolatriy still surviving, which may be said to have a Theological bearing; but apart from that there is a sort of conflict between the ideals of science and the ideals of religion—a conflict rather mingled with the emancipation of youth during the present century, and of some practical importance. The study of anthropology and of folk-lore has been pressed into the service; there is a tendency in some quarters to regard social conventions and other traditions as akin to savage taboos, and to expect sensible people to ignore them. Psychology, too, has developed a scheme called behaviourism, which seems to urge a freer rein to natural instincts, and has become an element in the emancipation of youth.

The revolution in physics, that has led to the examination and rejection of many ancient ideas, is by no means confined to that science. Something of the same sort has been going on contemporaneously in ordinary life. Old customs are being examined to see if they have a rational basis, and when they run counter to instinctive desires are apt to be discarded and rebelled against on hasty and irrational grounds. Youth is complimented on its courage, its willingness to run risks and try anything regardless of consequences. Its courage is undeniable, but its wisdom may be questioned. Even the physical risks which youth is willing to run, in such directions as swimming and flying and breaking of records, may involve the enticing of others to destruction. In other ambitious enterprises, the apparently growing idea that a social taboo has no rational basis and can be ignored with impunity, is becoming a danger.

Even among serious thinkers there is a difference of opinion on these matters. Some hold that we are entering on an age of reason, which submits everything to reconsideration and must involve changes in practice; while others have taught that an age of reason would mean the extinction of the human race, that animal instincts are necessary for its continuance, and that the struggle for existence and fierce competition are essential to its well-being and energetic development. It is argued that this competitive struggle has been all along essential to evolution, that the survival of the fittest can only thus be accomplished, and that

rivalry and strife must and ought to continue, even though humanity has now reached a superior stage. It is urged, on the other hand, that with the attainment of consciousness mankind might aim at gradually superseding competition by co-operation and mutual aid, that is to say, by instigating a course of conduct, on a large and even an international scale, such as has hitherto been confined mainly to family life. It has long been known that a family prospers not by competition and strife among its members, but by individual sacrifice and mutual aid; and one ideal is to extend this atmosphere of family life to neighbours and ultimately to all humanity, whereas the opposing ideal is that competition and rivalry must continue, lest mankind sinks into a contented apathy and loses the motive for individual exertion.

The doctrine of evolution has no clear say in this matter. There are those who hold that the same conflict which has brought us to what we are must continue unchecked or even intensified, now that we have become conscious of its benefits and have the power of directing its course. There are others who hold that though this method has been of great service in the past, it should now be taken in hand and controlled by conscious intelligence; that in fact it is one of those good things which has had its day and should now gradually cease to be.

Thus on the ethical side of effective religion, which might be defined as the practical outcome of beliefs, there is a conflict between the ideals of competitive struggle on one hand, and the ideals of the Sermon on the Mount on the other. These two ideals have long been in the field against each other, and it would be a great mistake to suppose that our present condition is the result of one or other alone. Both have, as a matter of fact, contributed to the result. Opinions may differ as to the proportion of success attributable to either, but it is surely certain that our hospitals and other numerous philanthropic efforts—the servers of the infirm and helpers of the weak—have been a conspicuous and effective element in the advance of the social organism. Civilised instincts have never been limited to the graspings of benefits and the accumulation of property. It has long been found that happiness does not lie that way. There is a deep-planted instinct to help those in distress, to run even irrational risks for the help of our fellows, and to enter on forlorn hopes without counting the cost. Evolution surely teaches that many lines of conduct, of which it

may be difficult to give a rational account, have grown up as the result of experience, and have been formulated in a system of convention, and what may thoughtlessly be called ‘taboo,’ as the outcome of experiments which have been made by our ancestors,—never perhaps rationally formulated, and yet handed down from one generation to another as an inherited result of experience. We find some of these conventions unconsciously implanted in animal and even in plant life. Methods of propagation deleterious to the race are guarded against in the very structure of organisms, so that they are inhibited not by reason but by physical difficulty. It may be that some of those conventions which are now being uprooted and rebelled against may have a similar evolutionary significance, and be more beneficial than we find it easy to explain.

Whatever view we take, if our conduct is to be regulated by intelligence in accordance with scientific ideals, it is surely necessary that the whole of the facts should be considered, and that we should not proceed to reason on data which are imperfect and incomplete, so as to determine our behaviour in the light of half knowledge. When youth proceeds to flaunt experience, to overthrow conventions, and to demonstrate its courage by all manner of experiments, it is bound to be proceeding without full knowledge of the facts. It cannot but be in a state of considerable ignorance; and in its exuberance it may be throwing away many of the safeguards which the experience of the race has wisely, though often unconsciously, set up.

It is proverbially rash to draw up an indictment against a nation or a class, and the tendency of the age can scarcely be generalised. There is undoubtedly a claim for greater freedom, less supervision, less restrictions; and this when granted may be selfishly abused by individuals, not necessarily young, for mere personal gratification. The mere desire to have a good time is not a lofty ambition. On the other hand, a reconsideration of old customs might result in a genuine effort towards improved social conditions, which admittedly are as yet far from perfect. In spite of perturbing incidents, the spirit which helped us through the War, and through the minor episode of the strike, is still alive, and only latent until a call comes. A few feel the call insistent and ever present; many a youth is asking him or her self *quo vadis*, and is endeavouring to exert a wholesome guiding influence. Youth should not be either praised or rebuked indiscriminately. Incitements to adventure are popular, but they are dangerous and

unnecessary. Temptations are strong enough without pandering to them.

Meanwhile, those experimenters who ignore the ideals of religion, and claim to be following the ideals of science, must be warned that science at present speaks with a divided voice. Religion has always had some bearing upon conduct—sometimes good, sometimes bad; it is of long standing, in one form or other as old as the race; and in civilised countries it can scarcely be doubted that the influence of religion on the whole has been good. Science, on the other hand, is of recent growth, and until lately has not had much influence on conduct. If its ideals are to be followed they should clearly be based on complete knowledge, otherwise they may mislead. No one will claim that our scientific knowledge is complete. It would be rather rash to assume that our knowledge is anything like sufficiently complete to be a safe guide to conduct, or such as to justify the discarding of evolutionary experience and replacing it by a system based on half knowledge.

To make this point of view more definite: it is undeniable that a certain group of scientific men have claimed that the religious belief in a spiritual world is a dream, and the survival of the individual apart from his bodily organism an illusion. If this is true, then such beliefs cannot but have an influence upon conduct; and youth, already urged to such conduct by its instincts, will take advantage of those beliefs to justify its own tendencies and to rush unthinking to its fate.

On the other hand, there is a small though perhaps growing group of scientific men who hold that human life on this planet is but a small part of existence; that the organism is only a manifestation of something which has its roots in another order of being; that we are associated with matter only for a time; that we have to contend against the results of our animal ancestry while on this planet; and further, that individual personality and character, though grown and developed here, survive the change which we call death; that the consequences of our actions are perennial; that the spiritual world to which we really belong is a reality; and that these things are now becoming capable of demonstration. If this belief turns out to be true, then that also must have an influence on conduct; and even the possibility that it is true should not be ignored by those who are helping to determine the conduct of themselves and future generations. Any scientific system which ignores this aspect of things is based on one-sided knowledge, and as such is a dangerous

guide. Religion has always taken these things into account, and it is excessively dangerous to ignore its sanctions and evolutionary traditions, the result of long experience on the part of those who must be considered the highest of the race.

The present-day conflict is no small matter. The two views are in the field against each other, and the outcome is in doubt. Knowledge comes but wisdom lingers; and during the conflict of opinion humanity does not stand still. Emancipated youth is claiming its privileges, and prides itself on living dangerously.

The literature of the present day is full of the signs of this conflict. It is exhibited in biological and psychological writings, and it is illustrated in its practical working by many novels. Perhaps the novels are the most important part of the literature, for they are widely disseminated and read, though doubtless many of the other books are read too. The art of the novelist is to make a study of contemporary life, to throw it into dramatic form, and to work out the actual consequences of the beliefs of the time.

There is one such novel, called "The Age of Reason,"¹ to which I wish to direct the attention of scientific men; partly because it is very readable, but chiefly because the author seems to have a genius for absorbing information from many different types and for elaborating it in a popularly intelligible form, with only the exaggeration which is characteristic and inevitable in any dramatic representation. The author is Sir Philip Gibbs, of whom I have no personal knowledge, who made a great reputation as a war correspondent. He has been able to weld his study of the types into a tale, and without ostensibly acting as advocate or drawing any moral, has depicted with considerable skill the interactions of certain types, and the possible tragical outcome of the conflict. To enter into detail would probably be unsuited to these columns. Suffice it to say that among those types are a well-to-do West End parson with broad views, and an absurd wife; a biologist of assumed eminence fully satisfied with the materialistic outlook; two young women of different characters and training, each well meaning up to her own lights; and some young men who are earnest and well intentioned, though weak and rather at the mercy of their surroundings. There is also another clergyman, of the highest ideals, though with insufficient knowledge to be able to exert much influence, who nevertheless sacrifices himself

¹ "The Age of Reason": a Novel. By Sir Philip Gibbs. Pp. 288. (London: Hutchinson and Co., Ltd., n.d.) 7s. 6d. net.

heroically in the effort, but ultimately retreats to the safety of a religious order. All these and other incidental persons pursue their various ideals of life in the light of their knowledge and beliefs—such as they are—as so many in actual life are now doing. The working out of the theme by a man of genius can scarcely fail to be instructive, in spite of a few ugly episodes; and however much opinions may differ as to details, a serious attempt has evidently been made to grasp the situation and to depict the conflict now going on. No apology is needed, therefore, for bringing the book before the notice of the readers of NATURE.

OLIVER LODGE.

A Critical Period in the Development of the Plant World.

Palæontologia Sinica. Ser. A, vol. 2, fasc. 1: *Palæozoic Plants from Central Shansi*. By T. G. Halle. Pp. 317 + 64 plates. (Peking: Geological Survey of China, 1927.)

FROM a comparative study of floras of the past, the palæobotanist, especially if he is assisted by the enthusiasm of youth, expects to make some contribution towards a better understanding of the process of plant evolution. The fewer facts we possess, the easier it seems to fit them into a pre-arranged scheme; the larger the mass of material, the more difficult it becomes to interpret the conflicting testimony of many witnesses. Palæobotanical research has thrown much light on the relative antiquity of certain genera and families; but it may also be said that the longer one studies the records of the rocks the problem of evolution assumes a more baffling complexity. In order to visualise the march of plant-life over the unstable surface of the earth, it is necessary to work out, so far as possible, the distribution of plants both in space and in time. The recent publication of a volume by Prof. Halle of Stockholm on a collection of fossil plants from northern China affords an exceptionally good illustration of the bearing of palæobotanical research on problems of general biological interest. The memoir on the Palæozoic plants from Central Shansi, published as a volume of the "*Palæontologia Sinica*," is appropriately dedicated to the memory of Alfred Gabriel Nathorst, whose post at Stockholm—the Mecca of palæobotanists and one of the very few places where the science has been deemed worthy of the status of a separate department—is now very ably filled by the author.

Prof. Halle went to China in the autumn of 1916 to study, as palæontologists should, the plant-

bearing strata in the field: after collecting material from many localities he was compelled, by a serious illness under very trying conditions, to abandon further work. An even more disastrous misfortune overtook him: the ship which was carrying the fossils to Sweden went down with all hands in a typhoon in September 1919. New collections of Palæozoic and Mesozoic plants made by Dr. Norin and by members of the Geological Survey of China were afterwards forwarded to Stockholm. The recently issued volume is devoted to the collections made by Dr. Norin in Central Shansi. The labour involved in their investigation must have been prodigious; there were 184 packing-cases, and, moreover, many of the plants were strange types. It is hoped to publish in a later volume an account of the material obtained by Mr. C. C. Wang in north-western Shansi. Prof. Halle has earned the gratitude of all students of extinct plants; and he may rest assured that all his fellow-workers rejoice that he has been entrusted with the exploration of one of the most promising fields of palæobotanical research—an undertaking demanding not only a wide knowledge of ancient floras, but also the ability to correlate taxonomic data with problems of primary importance to geologists and botanists.

The later Palæozoic vegetation of North America and Europe differed in many respects from the contemporary floras in the southern hemisphere and in India. In the latter part of the Carboniferous period and in the early stages of the Permian period, there were two fairly well-defined botanical provinces: a northern province reaching into the Arctic regions and extending as far south as the shores of the Tethys sea; a southern province represented by Gondwanaland. It has long been known that some members of the southern flora had wandered into the northern territory before the Triassic period was well advanced. The discovery of *Glossopteris* in Upper Permian beds in northern Russia in 1901, and later discoveries of Gondwanaland plants in Siberia, raised the question of possible routes of migration across the world-encircling Tethys sea. The inter-relation of the two provinces in the Permo-Carboniferous period is still vaguely defined, and the comparative lack of information on the late Palæozoic floras of China has been a serious gap in our knowledge.

The plant-bearing strata with which the memoir under consideration is concerned are classified by Dr. Norin as follows: At the base is the Yuehmenkou series consisting of sedimentary beds and seams of coal. The lower members of the series were assigned on the evidence of the fauna to