IDEALS OF SCIENCE*

SCIENCE to-day has come in for a strong indictment at the hands of politicians and the common man, and this is how it is worded in a book which I came across recently :—

"Humanity stands to-day in a position of unique peril. An unanswered question is written across the future: Is man to be the master of the civilization he has created, or is he to be its victim? Can he control the forces which he has himself let loose? Will this intricate machinery which he has built up and this vast body of knowledge which he has appropriated be the servant of the race, or will it be a Frankenstein monster that will slay its own maker? In brief, has man the capacity to keep up with his own machines?"

"... And the necessity of a right answer is perhaps more immediate than we realise. For science is not standing still ..... It is advancing by leaps and bounds, gaining in impetus with each year. It is giving us more machines, faster machines, machines increasingly more intricate and complex."

As I read this passage I began to wonder whether the National Chemical Laboratory of which I was invited to lay the Foundation Stone was going to be a blessing or a curse to India. But soon my doubts were dispersed and I was cheered by a new hope and a new outlook. I know that man is simultaneously a material object, a living being and a focus of mental activities. He appertains to the surface of the earth exactly as trees, plants and animals do. But he also belongs to another world—a world which although enclosed within himself stretches beyond space and time. And in this lie our hope and our salvation.

Science and War—A Fallacy

The popular indictment of science seemed to me, like many things popular, without any foundation. Can we justly blame science and its discoveries for all the destructive weapons used in the war or must we look elsewhere for the cause? Did we not have wars before even the beginnings of science and did not each war then make use of such knowledge as was then available for the creation of destructive weapons? For all along the ages war has been considered to be an easy way of solving disputes. It is not true then to say that science is responsible for war and for the creation of destructive agencies. If anything, human history seems to indicate that the ideas of war have been carried in their minds by men at all times and in all ages. Science alone is certainly not responsible for war.

Another popular complaint against science is that by the creation of machines she has taken away the joy of manual labour from the lives of men and made labour dull and mechanical. But as against this we must put into the other scale, the rich harvest of benefits which science has offered to humanity. The shortening of long distances and the easy means of communication, to mention only two of them. And every scientific discovery provides a number of constructive uses just as well as it provides the destructive uses. For instance steel is used for destructive weapons; but as against these it is used for a hundred arts of peace. With the atom bomb you also have infinite atomic energy at your command for beneficent use if you so will.

There is one other sin that is popularly ascribed to science, namely, the sin of glorifying the material at the expense of spiritual values. But I do not know that even this charge can stand the test of dispassionate analysis. If by this is meant that science has increased the means of multiplying food and clothes and all the other comforts of life and given us ideas and hope of a better living than was known to the world in the past, the charge is true. But science has also given us a scientific outlook, and the scientific method has taken hold of the minds of all thinking people in the world and it may be that if intelligently and honestly practised, science may be our salvation as much as religion and spiritual practices. Indeed we must not believe that there is a necessary antagonism between these two.

To take a few instances: Take the question of war which looms so prominently before every one of us to-day. In the ages gone by war was the easiest method of solving a dispute between nations. But with the advance of science and the scientific method the minds of all thoughtful people are now turning towards the creation of agencies more for peace than for war, namely, those of international arbitration and international control of problems common to the whole of humanity. It is true that science has increased and brought into existence deadly weapons of destruction, but it has also evolved men's minds to a stage at which the thought of war is replaced by thoughts of peaceful solutions of disputes.

Again take another instance. Science is one of the factors which have shifted the emphasis of our thinking from the salvation of the individual to the salvation of the whole race. The altruistic teaching of every religion worth the name is well known. The good of the people is the ideal of every religion. It is not an exaggeration, in my view, to say that science has actually promoted and made possible the achievement of those ideals. For as science advances and society becomes more and more complex, the individual has to learn more and more to subordinate his own good, to the good of all. And at no time were ideas of social welfare and social responsibility more thought of than in the present scientific age.

It would thus seem that many of the evils which are held at the door of science and scientific advance are a result of popular fallacies and lack of sound thinking. The fault is not in science but in ourselves that we are underlings,

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* Address delivered by Sri. B. G. Kher, Prime Minister of Bombay, on the occasion of Laying the Foundation Stone of the National Chemical Laboratory at Poona, on the 6th April 1947.

Science and Philosophy

We, Indians, are sometimes ridiculed as people being too much interested in matters concerning the spirit, and less with the material arts of life. The fault is attributed by our critics in a great measure to our ancient Hindu Philosophy. But what is this Hindu Philosophy except a very highly evolved and perfected science of life? Anyone who studies the principles of "Yoga" cannot but be impressed by the deep studies in Psychology which our ancestors had made the subject of their life's work. And did we not have in ancient times in our land a highly developed study of the science of astronomy, of mathematics, of medicine, of chemistry or of engineering? I do not know that our Hindu Philosophy which is so much ridiculed ever stood in the way of the study and progress of these sciences.

To my mind the correct view is not to regard the spiritual and the material sciences as two opposing principles or creeds; but to regard them as the two aspects of a single Reality, as two ways to visualise a single Truth, a single Principle, which underlies the phenomena of the universe. Material science works through the bewildering phenomena of nature and seeks to realise the unity that underlies all the diverse facts of Nature. Spiritual science or religion properly so-called working through the self and the states of consciousness, aims at the realisation of the Supreme self, "to know, that, by which all else is known". Both the saint and the scientist must possess the same qualities in order to reach their ideals. Selfless devotion, a meticulous love of Truth, infinite patience, thoroughness and a depth of mind which does not resent criticism in any form, but only makes for the broadest sympathies. Not without these qualities can either of the two reach his goal. But it is my firm belief that the goal which both science and religion reach by different routes is one and the same.

Science and Education

To-day the world is on the verge of moral bankruptcy. The spirit of selfishness, lawlessness and disintegration has spread far and wide. A sentimental pacifism is not the correct reply to these conditions. Science is on the march and is making great strides and with the advance of science the means of destruction are also advancing. Science does not take heed of moral progress. It continues to give us the bare, naked truth and leaves it to us to put it to use, good or evil, according to our moral make-up.

The only solution, to my mind, appears to be so to reconstruct fashion and extend our educational machinery that the moral progress of men including Scientists, keeps pace with the progress in science. We must use every valuable means at our command, religious, social, educational through individuals, groups and nations for the elevation of our moral standards. The problem of science is the problem of better education of the people. We must create higher ethical values. No one will dispute that the mechanical, physical and chemical sciences are incapable of giving us intelligence, moral discipline, health, nervous equilibrium, security and peace. But they will help us in our great task of creating the "Science of Man" which will be the task of the future. We must study Reality in all its aspects and to-day's function is an attempt to help us to do so in one of them.

The Chemical Laboratory—A Symbol of Our Future Greatness

The National Chemical Laboratory of which I have just had the honour and the good fortune to lay the Foundation Stone, promises to be the symbol of our future greatness as a Nation. The wheels of fortune have turned and we seem to be on the eve of the restoration of our former glory. Here, the scientists of our country will devote themselves to the search after Truths of Nature and thereby help the nation, let us hope, to achieve prosperity, material as well as spiritual. And in this respect its position will be unique. Its most important function will be to bridge the gulf between science and its application; it will be a link between the Institutes for the study and research in pure science on the one hand and the national industries on the other. On the other hand, the National Chemical Laboratory will itself undertake fundamental research in pure science, thus leading to greater and better industrialisation. For is not pure science really the mother of modern industry? On the other hand, greater industrialisation must inevitably stimulate the advance of science all round.

An Appeal and a Warning

The task of the seeker is always a very long and arduous one. This is no less true of discoveries in science and their application. Apart from these, the difficulties of finance, and the right type of workers must also be taken account of. But it is equally true that only continuous and untiring research can win for us new discoveries and inventions. And while I am on these difficulties, I will take the opportunity to make a special appeal to the industrialists. I would say to them, "Do not fall into the error of supposing, as you are very likely to do, that scientific or industrial progress can be made by entrusting everything to a paternal Government, and putting the whole responsibility for all initiative on it. Do not imagine that because Government have established this laboratory, Government alone must undertake all projects and experiments for the development of science and give you the benefit of these." Rather, be prepared to shoulder a major part of the responsibility, financial or otherwise, with the Government. Do not do away with your own private industrial laboratories, where alone industrial research is best stimulated. Nor must you stint in your support to this Institution and the others such as the Universities. I mention with great pride the example of the House of Tatas, whose contributions to schemes of National welfare have always been munificent. That is an example which you all must emulate if you believe in the progress of this country. If you keep that ideal before yourselves, Indian Industry cannot fail.