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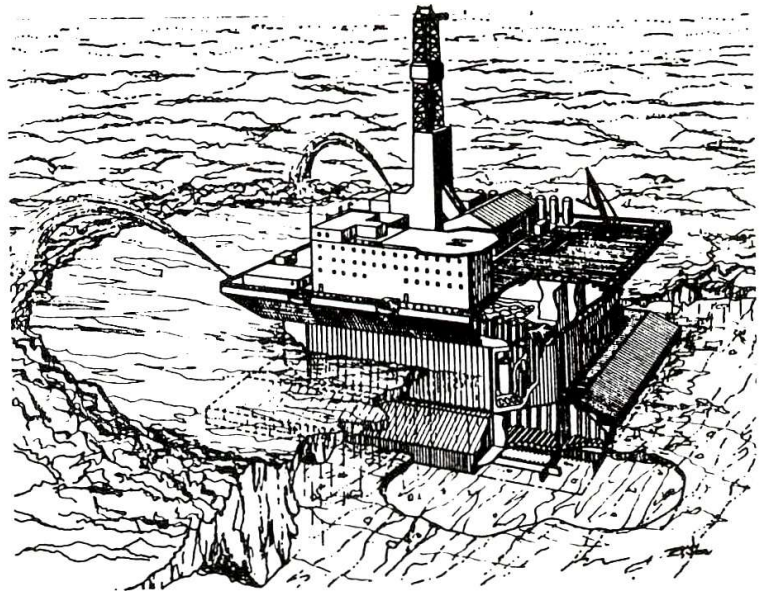
The separation of philosophy from religion, and the separation of science from philosophy, were great events in the history of modern Western Culture and their effects are difficult to estimate. The transition from the rationalism of the 17th century to the Enlightenment's proclamation of the "Omnipotence of reason" in the 18th century really explains Western man's proud self-confidence and his gradual abandonment of the restraints of traditional religious faith. After idealism reached its peak in the 19th century, the age of Marxism and positivism arrived. The positivist "omnipotence of science" replaced the former "omnipotence of reason," which is to say that science replaced religion and philosophy. As of today, Communism has swept across many countries in Europe, Asia and Africa. And while on the surface, the influence of technology is not as great as the influence of Communism, yet its common and penetrating

effect is a fact obvious to all.

However, we can now see that especially after the Second World War, a new situation has gradually emerged. The slogan "the omnipotence of science" still holds great attraction for countries which are still in the process of development. But, in countries where science has reached a high stage of development, knowledgeable people have long ago become aware of the dangers of science. At the beginning of the 20th century, many scholars and famous scientists conscientiously reviewed and criticized the future development of science and technology. The limitations of science were re-affirmed. To enclose science in an ivory tower, and, from the point of view of science, to discriminate against other areas of knowledge, especially philosophy and theology, was seen to be disadvantageous to the development of human society and not beneficial to the development of science itself. Scholars felt that science should serve mankind, and that mankind does not exist for the sake of science.

Several small and large wars during the 20th century have caused individuals and countries to become aware of threats which they have never experienced before. Improvements in technology have added greatly to the destructive power of weaponry, and competition in the production of weapons continues to create opportunities for war. Man is faced with the possibility of being destroyed.

Another phenomenon worthy of note is that technological development gives impetus to a rapid growth in industry, and helps to create economic prosperity, an affluent life and progress in material civilization. When the spiritual and material spheres of life do not develop equally, the worship of science and money is the path followed by all. This situation has caused an already weakened spirit of morality and sense of values to be almost



*Technological development gives impetus to a rapid growth in industry*

completely obliterated at many levels in present day society; to gain pleasure, many wicked practices are considered lawful. In many places violence, economic crimes, and juvenile delinquency have already reached disastrous proportions.

These negative and destructive factors do not come from scientific knowledge itself, but arise from the prejudices and mistaken notions human society has formed regarding science. Honest reflection should help people realize that to merely stress the neutrality of science is untenable. In other words, to strictly separate technology from moral principles, religious faith and spiritual values is not wise. Today, in Western and developing countries, many people, including scientists and non-scientists alike, are giving serious attention to the question of the integration of knowledge and they have reaffirmed the relationship between science and philosophy, morality and religion. Scientists are also men; they have the same human problems and necessities as everyone else. Given this premise, many people understand once more that it is a great mistake to affirm that religion is of necessity opposed to science. Fortunately, among scientists themselves, real positivists or atheists are minority. Many outstanding scientists possess a religious faith themselves. In their persons we can observe an harmonious co-existence of science and faith. Concrete reality far surpasses the sophistry of the scientism.

If the above analysis has an objective basis, then, regarding the development of science, we can maintain quite an optimistic attitude. From the point of view of the influence and direction of scientific development, pessimism is of no avail. We ought to have confidence regarding man's thirst for and capacity for pursuing complete truth. History also teaches that from failure mankind often discovers the path of progress and the hope for a re-birth.

However, real optimism does not allow us to be ignorant of the dangers of science. As a non-scientist, I am at a loss to explain the fact that when we attempt to delineate an image of a scientist, the result is very unclear. I think that many people will ask this question today: In the last analysis, what is this being called a "scientist"? Is the scientific profession really so beautiful and flawless?

When we think of scientists, we generally consider them to be persons of advanced knowledge and outstanding ability. Science is considered most up-to-date, most attractive and most necessary for today's society. Everyone thinks that scientists are a group of experts, scholars, inventors or technicians who have undergone strict training and have a conscientious attitude towards their work. Everyone considers that

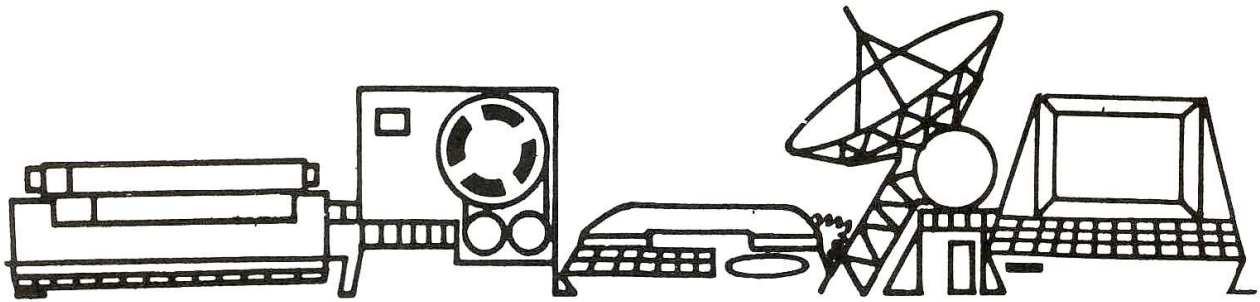
social progress, industrial development and even the future destiny of mankind is controlled by the scientists. Looked at from this aspect, the scientist's image is clear and bright. But the question is not so simple. Perhaps the little story below will reveal something to us. I have a classmate from Vietnam, who, before the Communists took over the country, went to the United States to study physics. While there, it was discovered that he was a genius in science. The American government invited him to participate in a certain research project. However, because his ideal was to serve his own country after completing his studies, he did not accept the high salary but return to Vietnam. The U.S. government sent someone to follow him and prevented other organizations from hiring this expert. At last, because the situation in the country changed, my friend accepted the American invitation. Although he received a high salary, a secure life and a place for research, we can ask: How much freedom to decide, choose and plan his work does this scientist have? His work has most likely become one small segment of a huge research scheme, and he probably has no say in the decisions regarding the whole plan. No need to mention that he will have nothing to say regarding the function and effects of the practical applications of the results of his research.



*Finally, who are the scientists?*

In a capitalist society, whether a scientist is working for the government or for private enterprise, he freely and willingly decides to do so and will receive reasonable rewards for services rendered. Since the scientist is hired to do research or to work on a project, the decision-making authority is the capitalists or government officials. As to the results obtained from research and the application of these findings, does anyone really think that the individual scientist has much say? Yet we should ask the question: Can the scientist remain aloof if the results of his research are harmful to society? We should also ask: Is the situation of the scientists in the socialist countries really very different? Is their research work not controlled? How much freedom do they enjoy? These questions are worth asking and they demand answers.

Continuous discoveries in technology bring continuous changes to human life and society. No one denies that technology is basically good



*Technology is basically good and has its value*

and has its value. But technology can be used for peace or war, for the welfare or detriment of the people. Who is responsible for the deciding on the uses to which technology is put? The people? A government or a political party? Capitalists? This is a very complicated problem. But what concerns us is the fact that the scientists are also persons, and they have a free will. Do they have any authority to speak about the applications of science? How much freedom and authority do they really have? If scientists just passively do research, make discoveries, manufacture, and have absolutely no control regarding the application or no freedom to speak about it, are they much different from intelligent robots? Robots cannot take responsibility for the fortunes or misfortunes of mankind. But can scientists completely wash their hands of responsibility for the manufacture and competitive sale of weapons?

Other problems come from the scientists themselves. Science has already run into a phenomenon which causes confusion and leads to contradiction: the more it explores and controls the universe and the mysteries of life, the greater danger it brings to mankind. Scientists, however, to protect their own name and for their own advantage, or due to pressure, frequently and selfishly stress that their work is not dangerous. The arms race is an example known to everybody. Yvan de Hemptinne, chairman of the committee on Scientific Policy of the United Nations, gives us another example. He pointed out that recently some people devised a plan to call a halt to the work of a group of microbiologists. It involved work with bacteria in the digestive tract. But, the result was an uncontrolled development among the bacteria. The microbiologists all claimed that their work was absolutely safe. However, if these deteriorating bacteria had left the confines of the laboratory, they would have caused disaster throughout the whole world.

In order to ensure that their work will not be affected, and in order that their hearts be at peace in the face of the dangers brought about by science, many scientists claim that scientific knowledge and

research are basically neutral, and have nothing to do with good or evil. Only if scientific materials or results are used in an incorrect manner, then crimes take place, they say. This is the argument that science and moral principles are separate entities.

As it was mentioned above, the decision to implement scientific plans is oftentimes in the hands of national governments. They might be concerned with benefits to the population as a whole, or possibly only concerned with immediate political or economic advantages. They are, perhaps, unmindful of the balanced and continuous development of society in the future. In carrying out plans, the priority might even be decided to achieve one's ambition. Sometimes the dangers or harm which might possibly be inflicted on the citizens or on mankind are completely overlooked. What is the real need of mankind? How can scientists, when faced with the decisions of governments, be unconcerned about this serious problem?

For several hundred years science has matured, developed, and made great progress by passing through innumerable struggles, difficulties, mistakes and challenges. We think that now is the time to remake the image of the scientist. Below are four modest suggestions which may be of help:

1. Scientists cannot forget that they also are human, and they must affirm their own needs and recognize their limitations. They must affirm their own human nature and self-respect. Only in this way will they not shut themselves up in an ivory tower, and deny or forget the value and importance of human life in all its aspects. Besides standing on the side of science, if the scientist would also stand on mankind's side, and experience their life, work, and mission, his vision would be broadened and his work would become more beneficial to himself and others.

2. The future development of science must, of necessity, be open, and it should not be closed in upon itself for its own self-glorification. Mankind more and more realizes that it is harmful to use science as a tool to attack other human disciplines and experiences. If scientists can positively promote the integration of science with philosophy, ethics, literature, art, theology and religious belief, they will bring more real happiness and more complete progress to mankind.

3. Modern scientists should reflect more upon the relationship between science and morality and religion, between their own mission and moral principles and religious faith. If one ignores these principles,

it is easy to absolutize science, and it will lead them to unreasonably consider scientific research as man's highest purpose. Science is for man; not man for science. If scientists can maintain the stance of man, then they will enhance the meaning, value, perfection and worth of their profession. Otherwise, scientists will discover one day that they are only the sacrificial offerings to technology and utilitarianism.

4. If we are to affirm the value of human life, respect for human nature and man's greatness, one important condition cannot be lacking. That is freedom. In freedom man should make his own decisions, reasonable decisions and in accordance with the desires of his heart. Today a serious danger daily faced by scientists is that in their research work, the possibility of making the decisions about their work are more and more remote. Scientists should unite, show moral courage, highly prize their own freedom and fight for their own freedom. Science is a tool, but scientists are not tools. More and more facts show us that scientists have already become the cheap tools of capitalists or are being used by ambitious politicians as means for controlling others. If this situation does not change, the image of the scientist will be worse than that of any other profession.