**Part II**

**Texts for reading and translation**

**(Tasks to be done at home and continued in class)**

**Text 1**

**SCIENCE AND TECHNOLOGY**

1. Science problems can be roughly classified as analytic and synthetic. In analytic problems we seek the principles of the most profound natural processes, the scientist working always at the edge of the unknown. This is the situation today, for instance, within the two extremes of research in physics -elementary particle physics and astrophysics - both concerned with the properties of matter, one on the smallest, the other on the grandest scale. Research objectives in these fields are determined by the internal logic of the development of the field itself. Revolutionary shocks to the foundations of scientific ideas can be anticipated from these very areas.
2. As to synthetic problems, they are more often studied because of the possibilities which they hold for practical applications, immediate and distant, than because their solution is called for by the logic of science. This kind of motivation strongly influences the nature of scientific thinking and the methods employed in solving problems. Instead of the traditional scientific question: "How is this to be explained?" the question behind the research becomes "How is this to be done?" The doing involves the production of a new substance or a new process with certain predetermined characteristics. In many areas of science, the division between science and technology is being erased and the chain of research gradually becomes the sequence of technological and engineering stages involved in working out a problem.
3. In this sense, science is a Janus-headed figure. On the one hand, it is pure science, striving to reach the essence of the laws of the material world. On the other hand, it is the basis of a new technology, the workshop of bold technical ideas, and the driving force behind continuous technical progress.
4. In popular books and journals we often read that science is making greater strides every year, that in various fields of science discovery is followed by discovery in as steady stream of increasing significance and that one daring theory opens the way to the next. Such may be the impression with research becoming a collective doing and scientific data exchange a much faster process. Every new idea should immediately be taken up and developed further, forming the initial point of an avalanche-like process.
5. Things are, in fact, much more complex than that. Every year scientists are faced with the problems of working through thicker and tougher material, phenomena at or near the surface having long been explored, researched, and understood. The new relations that we study, say, in the world of elementary particles at dimensions of the order of *10-13* cm or in the world of superstellar objects at distances of billions of

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light years from us, demand extremely intense efforts on the part of physicists and astrophysicists, the continuous modernization of laboratories with experimental facilities becoming more and more grandiose and costing enormous sums. Moreover, it should be stressed that scientific equipment rapidly becomes obsolete. Consequently, the pace of scientific development in the areas of greatest theoretical significance is drastically limited by the rate of building new research facilities, the latter depending on a number of economic and technological factors not directly linked to the aims of the research.

***Task 1. Be ready to answer the following questions in class.***

1. What are the two motive forces behind synthetic and analytic research?
2. What is the main idea of the 4th paragraph?
3. What problems are scientists faced with?
4. Does the pace of scientific development depend on the rate of building new research facilities? Prove your point of view.

***Task 2. Translate paragraph 5 in writing.***

**Topics for discussion**

1. The present-day relation between science and technology.
2. Favourable and harmful effects of scientific and technological discoveries on human life.