

GENERAL SCIENCE

Scientists Face Problems

Although new methods of science and technology have been developed, the most urgent problems such as photosynthesis remain essentially untackled, Watson Davis reports.

► MAJOR PROBLEMS in development of new methods of science and technology remain inadequately developed and neglected.

These include:

1. The discovery of the mystery of the green leaf and the application of the method of photosynthesis to industrial and synthetic control.

2. Further expansion of the obtaining of pure water from the sea and the polluted or salt contaminated water sources on land.

3. Pollution of air, including the dangers of personal air pollution through smoking.

4. More active inquiry into the conflicts between nations, groups and individuals with the purpose of increasing peace in the world.

5. Major development of new education methods and their application to the education explosion now in progress.

The exploration of space, the exploration of the earth itself, including the oceans, Antarctica and other remote areas, and the investigation of the great plagues of mankind including cancer and mental disease are having a considerably larger support through the Government and international effort.

The most urgent problem essentially untackled, except in perhaps a half dozen laboratories throughout the world, is the matter of how the plant converts the sunshine into carbohydrates, which contain energy.

It does not seem impossible that there should be discovered, if intensive research were directed to the task, a way of converting the sunshine's energy more efficiently than possible by the plant. Scientists are not yet sure exactly how this is done and even a duplication of the plant's method of photosynthesis is not yet possible.

Water is a necessity of civilization and the population explosion is putting people into areas that do not have adequate water supplies. Unless the attempt to get new supplies of water most effectively from the oceans is speeded, there will be a dangerously arid hiatus for mankind in the on-rushing areas of population expansion.

The world public is aroused by air pollution as evidenced by smog and the rise of respiratory diseases when weather conditions keep polluted air stationary over an area, and more active direction and investigation are needed.

The most neglected area of scientific research today is how to resolve the conflict between mankind, not only on an international level but through conflict between groups, including racial groups, and conflict within the community and the family. Again considerable work is being done in this field, but expenditures for research are

not of the same order as those which have brought forth such important results in atomic energy, space and medical research.

New mechanisms and understandings of educational methods are available or being worked upon. The education of youth is an effort that cannot be delayed because of the large number of children who are being educated year by year, who pass through our schools.

There are new methods of teaching and the education both of teachers and of children is worthy of the best brains and adequate money from both the Government and private agencies.

These are some of the tasks of the new year, requiring the same kind of energy and foresight that has started us on the road to the moon, that could very well be resolved and turn into exciting and important developments in the years to come.

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Daily Science Newspaper Seen Necessary Soon

► THE INCREASE in scientific research will make necessary a daily newspaper devoted to science in a short time if predictions made by Prof. Derek J. de Solla Price of Yale University to the American Association for the Advancement of Science are fulfilled.

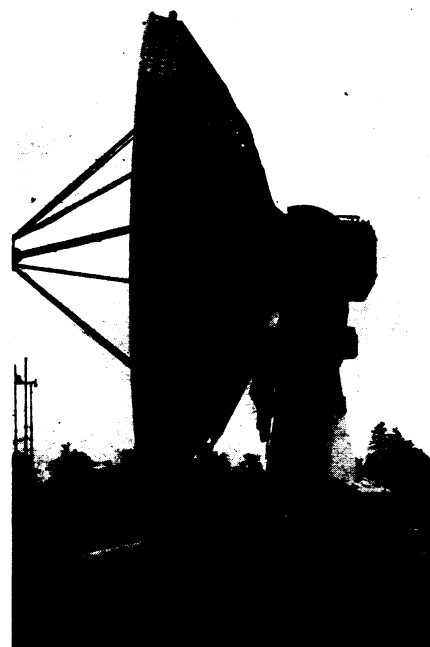
In the next decade there will be as many scientific papers published as have appeared in the total history of the world until now, he foresees. The number of scientists will increase prodigiously and as the population doubles, the scientific manpower and literature will increase ten times with every doubling of the population.

Prof. Price finds from his studies that the number of scientists in a field increases as the square of the number of good scientists and the amount of good scientific research that is done. The dollar cost of research also increases as the square of the total number of scientists employed.

Prof. Price believes that the scientific paper as a means of communication is fast dying and will be replaced in part by person-to-person communication and in part by machine-handled data, perhaps supplemented by the scientific daily newspaper, which has been suggested by other students of scientific literature.

He finds that only about ten per cent of the scientists are highly productive, and he also concludes that the more scientifically mature a country becomes, the less will be its share of the total of the world's scientific work.

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SATCOM

SIGNALS TO SYNCOM—Army technicians at Lakehurst, N. J., connect a power cable to the 30-foot parabolic antenna, main component in an air-transportable satellite communications terminal developed for communications experiments. Constructed under the U.S. Army Satellite Communications (SATCOM) Agency, it will be used initially in support of SYNCOM, a synchronous, 24-hour communications satellite.

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Reports from AAAS Philadelphia Meetings

► REPORTS to the annual sessions of the American Association for the Advancement of Science included:

Americans can tolerate far more hardship and adversity than they believe possible, judging by the reaction of Americans captured by Communists during the Korean War—Albert D. Biderman, Bureau of Social Science Research, Washington, D.C.

Asia peoples, including Chinese Communists, fail in long-term planning because they cannot understand theoretical situations, an inability that stems from Buddhism, Hinduism and Confucianism—Prof. Bert F. Hoselitz, University of Chicago.

Trains devoted exclusively to hauling coal from mine to power plants may help make this fuel competitive with gas and oil.—Harry Perry, U.S. Bureau of Mines.

Some fishes taste with their fins, which contain taste buds—Dr. John E. Bardach, University of Michigan, and James Case, University of California at Santa Barbara.

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