GENERAL SCIENCE

Science Outlook for 1952

Shortage of scientific manpower is problem for coming year. Possibility of test of hydrogen bomb foreseen. Research on using sun's energy will continue.

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➤ IF THE world continues to teeter on the brink of an all-out world war or if an armed era of relative peace is established during 1952, continued progress in many fields of pure and applied science, technology and invention can be expected. Widespread destructive war would wreck many advances in progress.

The question of scientific and technical manpower will become more critical in the coming months. Defense and industrial leaders realize that steps must be taken to encourage capable young people to enter into scientific and engineering study if the United States is to keep up with the Soviet Union in available scientists and engineers. Uncertainties of the draft and possible universal military service, coupled with the likelihood of presidential election year smears upon actively constructive efforts, may interfere further with steps to remedy the shortage.

Use of new forms of atomic weapons will be made if more widespread war develops. These will include small atomic bombs propelled by artillery or guided missiles used in support of ground troops.

There is a chance that the fusion or so-called hydrogen bomb will be tested, but probably the public will not know whether or not it is successful.

Atomic Power Applied

Significant advances in use of atomic power for propelling submarines, other ships or airplanes will not come to fruition in the next year although intensive development will continue. Commercial use of atomic power will be delayed by military applications.

Information on the making of fissionable uranium 233 (useful in bombs) out of thorium will probably be obtained in the Arco, Idaho, breeder reactor, but it will be held secret.

Research on photosynthesis, the capturing of sun energy, will continue, but without more expenditure of brains and money on this key problem decisive practical results during the coming year hardly can be expected.

Before the secret of photosynthesis is discovered and duplicated, the energy of the sunshine may be utilized more effectively through the use of some of the lowly, one-celled plants, the algae. Experiments on mass production of Chlorella, one of the green algae, should tell us in the coming year whether it can be used as food for people or animals and whether it is an economical and practical raw material and energy source.

Shown on the cover of this week's SCIENCE NEWS LETTER are the test tubes on the top of the building at Cambridge, Mass., from which scientists hope a commercial process for a new food source will emerge.

In medicine, look for more new surgical operations, including on the heart, and more use of "banks" from which nerves, bones, and other body replacements are used for successful repair of damage caused by disease and accident.

There is always the chance that a new antibiotic, of the class of penicillin, will be proved useful, even upon one of the more resistant and serious diseases.

Much research will be done upon the key medical problem of treating effects of the powerful radiations of the atomic bomb. As a result we may be in a better position to save some of those who may be in range of any atomic bombs that are dropped.

AAAS PRESIDENT-ELECT — Dr. Edward U. Condon, director of research and development, Corning Glass Works, is the new president-elect of the American Association for the Advancement of Science.

There will be continued inquiry into individual human differences with the chance that refined biochemical tests and metabolic determinations will be used to detect them. Such research approaches promise to aid our understanding of normality as well as of mental illnesses. There may be advances in treatment of mental ills as a result.

Better human relations in factories, communities and even between nations are likely as more recognition is given to the psychological and sociological factors in communicating information, ideas and motivations.

Because we live in a world in which the proportion of older people is constantly increasing, better understanding of the aging process and means for counteracting the effects of growing old will be sought with some success in the near future.

Nutrition Factors

Some new factors or trace elements needed for healthy nutrition in man, animals, insects and plants will probably be discovered, adding to the multiplicity of vitamins and other elements that are known to be necessary.

A total eclipse of the sun will be seen from a path across middle Africa and the troubled Near East. Astronomers will observe it, probably at Khartoum, making optical and radio observations upon it. Some new facts about the ionosphere and effects of solar radiation upon it will probably result.

Discovery of hundreds of variable stars in the nucleus of the Andromeda nebula will be announced.

The mystery of the stars that are known, not by their light, but by radio microwaves emitted by them, will probably be solved in part by the identification of the source of the radiation.

The world's largest coronagraph, a device for artificially eclipsing the sun and observing its activity, will go into service high in the American Rockies to give more information on the effect of the sun on radio communication, weather and other terrestrial happenings.

The new kind of electronic device, called the transistor, which replaces the conventional and more bulky electron tube, will be used more widely, with one application making possible smaller-sized hearing aids.

New understanding of protein structure being obtained will begin to explain chemical processes, particularly in living matter, with the chance of application to medicine and genetics.

Electronic computing machines will be applied to more problems during the year, some of them non-military.