

GENERAL SCIENCE

Man's Future Looks Bright

Man has progressed in political and social organizations though no anatomical changes have occurred. That radiation will have undesirable effects is partly fallacious.

THE DEVELOPMENT of interplanetary space vehicles does not show any greater born mental capacity than the ancient invention and use of the wheel and bow and arrow, Dr. Laurence H. Snyder, biologist and president of the University of Hawaii, told the symposium on science and modern civilization in Tokyo.

"There has been little or no anatomical change in man over the last half million years and there is no good evidence that intelligence has changed either," Dr. Snyder said in stressing that man's biological evolution has been, and will continue to be, very slow indeed.

On the other hand, changes in human social and political organization have taken place at unbelievably rapid rates in the past, and, in Dr. Snyder's opinion, will continue to do so in the future.

A tremendous future challenge, in Dr. Snyder's opinion, will be successful efforts by social scientists that will enable mankind to use more constructively the vast latent biological potentialities which exist in all peoples everywhere. This could be accomplished by the newer techniques of social science, reinforced by modern genetic knowledge and augmented by an educated and informed public.

Dr. Snyder said that the argument that there will be harmful effects upon mankind from undesirable genes, created by radiation

and other effects, is fallacious in some aspects. He pointed out that the essential fallacy consists in the application of the epithets "deleterious," "harmful," or "undesirable" to the mutant genes themselves rather than to their effects.

If, through modern medical, social, or economic progress, selection has been relaxed against any gene with harmful effects, he said, this relaxation has been accomplished only because the medical, social or economic agencies have provided environments in which the effects of the genes are rendered less harmful or quite innocuous.

As to those genes that persist in producing detrimental effects in all known environments and despite all attempts at therapy, he said, selection against them remains today as severe and effective as ever. And selection will again begin to operate against any gene for which it has been relaxed if the burden of providing the necessary therapeutic conditions begins to outweigh the social value of providing them. He feels it is reasonable to presume that medical and social advances will continue to be made with ever-increasing efficiency, and that therapeutic or preventive measures which may now seem burdensome will be continuously improved and will become ever more simple, natural, and acceptable.

Science News Letter, April 23, 1960



HEART OF MASER—A 12-ounce magnet together with a half-inch square crystal of synthetic ruby and a copper transition section form the "heart" of a ruby maser developed by Hughes Aircraft Company, Culver City, Calif.

Dr. Reichelderfer said that the "major accomplishment" of Tiros in taking pictures of earth's weather patterns confirmed the prediction made in 1954 by Dr. Harry Wexler, the Bureau's director of meteorological research, that such information could be gathered by satellites.

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Weather Analysis Slow

TIROS I continues to demonstrate that a system of half a dozen or so satellites could warn of storms brewing anywhere in the world, officials of the National Aeronautics and Space Administration indicate.

But there is a bottleneck:

About 100 NASA, Weather Bureau and Air Force personnel, some working 15-hour days, are swamped by the more than a thousand pictures already radioed back from Tiros I, the TV cloud-watching satellite.

One NASA official said that putting a useful set of satellites into the air has been proved possible by Tiros. However, a system for quickly analyzing the pictures produced must be built.

The slowness in analyzing pictures from Tiros does not really matter, he said, because Tiros is not a storm warning system but an experiment. Tiros' pictures must be painstakingly correlated with ground data so meteorologists can say that such a cloud pattern means a certain kind of weather on the earth below.

After this correlation, quick weather predictions may be possible. The analysis problem is not a small one.

Although they are working overtime, meteorologists with the Tiros project are pleased. Tiros has produced weather data over oceans where information has been scanty or non-existent.

A special showing of pictures for newsmen revealed the outlines of Spain, Ma-

METEOROLOGY

U.S. Will Save Millions

SPOTTING storms from outer space, such as the typhoon photographed from Tiros, will save U.S. industry and Government millions upon millions of dollars yearly.

Advance warning of a severe storm's approach will allow those in its predicted path to take precautionary measures that will save lives and forestall extensive property damage.

The typhoon photographs taken from the experimental weather satellite mark a "major milestone" in weather forecasting, Dr. F. W. Reichelderfer, chief of the U.S. Weather Bureau, told SCIENCE SERVICE.

He said Bureau scientists were "tremendously excited" about the possibilities of spotting undetected storms from space when weather satellites become operational rather than experimental, as Tiros is.

Hurricane forecasts, for instance, instead of warning of the threat of a possible hurricane in the Gulf of Mexico would be definite as to the presence of a tropical storm and its location. Reconnaissance airplanes could be sent directly to the spot,

instead of having to search a wide area to find the storm.

Tornadoes also, when photographed from above, might show some characteristics that could be used to spot them before the twisting funnels were seen from earth-bound stations.

"The detail on photographs from Tiros at the present time is enough that there is hope they will show conditions in tornado situations that can be recognized and used to identify and detect the deadly storms," Dr. Reichelderfer said.

He noted that the success of the equipment in the Tiros satellite, which functioned beyond the expectation of its designers, gave the Weather Bureau a strong case to strengthen and speed up the weather satellite program. One problem, he said, was to make the information gathered by satellites available as soon as possible to weather stations around the country.

Communications satellites to reflect radio waves carrying this information would solve the problem.

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gorca, the St. Lawrence estuary, Italy, Corsica and similar large land masses.

Tiros' TV pictures have 500 scanning lines. In the pictures of areas 800 miles on a side, each line would represent a strip of land about one and one-half miles wide. In the 80-mile-wide pictures, each line represents a strip about a sixth of a mile wide.

The camera can distinguish between white clouds and dark ground and can even distinguish the lighter colors of the shoals around the Bahamas, but not much more.

The camera cannot photograph stars. But NASA may try for a picture of the moon.

Science News Letter, April 23, 1960

Tiros I Spots Typhoon

See Front Cover

THE ENORMOUS importance of weather satellites became dramatically apparent when Tiros I spotted its first typhoon.

The storm, found in the South Pacific about 1,000 miles east of Brisbane, Australia, is shown on the cover of this week's SCIENCE NEWS LETTER.

The shots were taken by the wide angle camera, during the 125th orbit of Tiros I at 10 p.m., April 9, 1960, and received by Weather Bureau scientists at the Ft. Monmouth, N. J., receiving station.

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ROCKETS AND MISSILES

Navigation Moon Launch Will Help Plot Locations

THE TRANSIT 1-B satellite launched April 13 plus four to six similar satellites to be launched in the next two years will enable Polaris submarines to strike with great accuracy, Navy officials here indicate.

To fire their missiles accurately, the atomic submarines must know their exact position in relation to their targets.

Any nation's navigators may use the Transit system to plot their locations within a mile if they have a slide rule and a radio receiver, but Polaris submarines will have more. They will have secret navigational systems utilizing electronic computers. Air Force planes bearing long-range missiles may use a similar system.

Transit 1-B is a simple 36-inch sphere with two oscillators and transmitters operating on 54, 324, 162 and 216 megacycles. It is broadcasting on four frequencies to determine which is best for future operations. Most economically, Transit probably could be integrated with the Tiros-type weather satellites planned by the National Aeronautics and Space Administration.

Just how simple is Transit? As simple as the whistle of a locomotive. The whistle's pitch seems to drop as the locomotive passes. The Transit's radio beam will also appear to drop as it passes a Polaris submarine.

By measurements of this frequency shift (the Doppler effect) a navigator can figure his position.

With this system, commercial planes and ships may also find their locations. And maps will probably be improved as small islands are pin-pointed. Transit 1-B is expected to remain in orbit for 16 months.

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AERONAUTICS

Thrust Indicator Announced for Jets

A NEW KIND of thrust indicator for jet engines has been announced. It provides a pilot with immediate data on the performance of each jet engine.

With present instruments, a pilot must calculate by chart and slide rule to arrive at complete thrust information.

A representative of Astromics, a new division of the Mitchell Camera Corporation in Glendale, Calif., said the new instrument provides "a sharply increased safety factor."

The instrument coordinates engine pressure ratio, temperature and altitude to provide a thrust indication.

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