

GENERAL SCIENCE

Telescopic Image Device

In the annual report of Carnegie Institution of Washington, hope is expressed for testing in the near future an electronic device on a telescope.

➤ A DEVICE that will increase the usefulness of light gathered by a telescope a thousand times or more will begin to serve astronomy within a few months with the fulfillment of hopes expressed in the annual report of the Carnegie Institution of Washington.

This new image multiplier tube hitched to a 20-inch telescope should make it the equivalent of the world's largest 200-inch on Mt. Palomar, and it would correspondingly increase the effective distance in space accessible to large telescopes.

The astronomers hope to identify objects against the night sky much fainter than the 23rd magnitude stars that can now be photographed. Spectroscopic studies will be pushed down from the 12th to the 16th magnitude, it is hoped.

Most promising is the image multiplier tube proposed and developed by Dr. E. I. Sternglass and M. M. Wachtel of the Westinghouse Research Laboratories. Like two other methods of increased light capture by telescopes, the tube most likely to get a first practical test uses an electronic technique.

In his first report as president of the Carnegie Institution of Washington, Dr. Caryl P. Haskins expressed his conviction that the present rate of doubling for the total magnitude of scientific effort, which is two and perhaps three times in a generation of men, will not decrease but will continue to grow exponentially in the immediate future.

This expansion rate is appreciably greater than for many non-scientific and non-technological activities.

Dr. Haskins also pointed out that, although specialization is the lifeblood of scientific investigation, excessive fragmentation of research should be avoided.

Other results of research at the far-flung Carnegie Institution laboratories include:

The rate of expansion of the universe

seems to be slowing down somewhat at the visible fringes of space, giving rise to speculation that there may be some plausibility to the idea that the cosmos oscillates between expanding and contracting.

Exhaustion of hydrogen fuel of which stars are made plays a major role in stellar evolution, Mt. Wilson and Palomar Observatory studies indicate.

The age of the earth's rocks is being determined more accurately from the radioactive decay of potassium and rubidium, and geologists are confident that they can obtain accurate ages for many more geological formations than heretofore.

World-wide correlation of pre-Cambrian sedimentary formations promises to become a possibility, and it has already been established that there are sedimentary and volcanic formations older than 2,500 million years on the North American, Australian and African continents.

Studies showed that large, functionally intact pieces of nucleic acid pass from parent to offspring in viruses.

It was also found that the gene is not the ultimate hereditary unit, that it can be broken down into smaller entities and that mutations occurring at the same place can produce different effects.

The effect of the tranquilizing drug, reserpine, upon the reproductive cycle in the rhesus monkey was found to be suppression of ovulation, which has implications in its clinical use.

Science News Letter, December 22, 1956

TECHNOLOGY

Develop "Thin-Skinned" Wire for Hot Use

➤ELECTRICAL EQUIPMENT that will last longer is the promise of a "thin-skinned" copper wire developed by Westinghouse engineers in Pittsburgh.

Using a new metallurgical technique, the scientists have been able to coat copper wire with a thin, protective aluminum "skin" that is only one-fortieth as thick as the average skin on the human body.

The resulting product, the Westinghouse engineers reported, will mean an increase in life, a reduction in size and an increase in the efficiency of present-day electrical equipment. Key to the new technique is encasing the wire in a protective aluminum coat and then re-coating with a high-temperature insulation.

The wire can then operate over long periods of time at higher temperatures than have been practical up to now.

Science News Letter, December 22, 1956

MEDICINE

Antibiotic Effective Against Ileitis

➤ VANCOMYCIN, a powerful new antibiotic, has proven effective against intestinal infections usually found in ileitis. It is an antibiotic coming from the same type of soil bacteria that produce the famous streptomycin and Terramycin.

The antibiotic can be given either by mouth or intravenously and travels quickly to the lung, heart and intestinal cavities, stamping out all existing micrococcal infections.

Vancomycin's most valuable characteristic is that bacteria cannot build up resistance to it as fast as they can to other antibiotics. It causes no toxic reaction in most people and also shows no cross resistance with other antibiotics that may be given along with it.

Successful use of the new antibiotic is reported by Drs. Joseph E. Geraci, Fordyce R. Heilman, Donald R. Nichols, William E. Wellman and Griff T. Ross in the *Proceedings of the Staff Meetings of the Mayo Clinic*.

Science News Letter, December 22, 1956

MEDICINE

Probe Tuberculosis Mystery Germs

➤ A MEDICAL MYSTERY is being probed by 23 scientific detectives. The mystery concerns germs, or bacilli, having a family resemblance to the tuberculosis germ but with several features setting them apart.

Most of the mystery germs appear yellowish or orange in colonies instead of the cream color of TB germs in colonies growing in laboratory dishes.

The mystery germs, scientifically termed atypical tubercle bacilli, cannot produce progressive disease in guinea pigs, but they are being seen in increasing numbers in patients presumed to have tuberculosis.

Their identity is being sought by the 23 scientists in the United States, France and Canada in a cooperative study sponsored by the American Trudeau Society, medical section of the National Tuberculosis Association.

Science News Letter, December 22, 1956

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