

ASTRONOMY

War-Ruined Observatory Will Be Rebuilt

► A NEW astronomical observatory will rise upon the ruins of war-destroyed Pulkovo Observatory, near Leningrad, it was announced by President A. Mikhailov of the USSR Academy of Sciences Astronomical Council in a message of new year's greetings from Russian astronomers to their American colleagues.

Hope that the forthcoming year would be a year of still closer collaboration and friendship among the scientists of the two nations was expressed by Prof. Mikhailov.

The southern branch of Pulkovo Observatory at Siemeis in Crimea was also destroyed, Prof. Mikhailov recalled, by "the most cunning and aggressive enemy who brought such great destruction to the peace-loving people of the Soviet Union and their cultural and scientific institutions."

"The astronomical year 1945 that is ending brought the greatest victory to the Allied armies in which American, English and Russian soldiers fought side by side," the Soviet astronomical leader said.

During the celebration of the 220th anniversary of the USSR Academy of Sciences last summer Dr. Harlow Shapley, director of Harvard College Observatory, and Astronomer Royal Sir Harold Spencer Jones visited the Pulkovo Observatory ruins and expressed the hope that the famous observatory would be rebuilt.

Science News Letter, January 12, 1946

CHEMISTRY

Plastic-Coated Yarn For Superior Insulation

► A PLASTIC-COATED yarn provided U. S. Navy vessels with electrical insulation said to be superior to the insulation used by other navies, it is now revealed. The relatively new material is also waterproof, rustproof and immune to extremes of temperature, and is resistant to mild acids and alkalis. Fiberglass, cotton, or rayon thread is used under the plastic coating.

Both Army and Navy used the plastic-coated yarn for other purposes than insulation, particularly for window screens, where its strength and immunity to rust make it especially serviceable. It will now find many applications in civilian uses, ranging from perspiration-resistant girdles and foundation garments

to industrial conveyor belts and fish lines. A heavy webbing of the material is suitable for wide use in furniture that may be left outdoors in all kinds of weather.

This plastic-coated yarn is known as Plexon, and is made in New York by Freyberg Bros-Strauss. It was developed by two French chemists.

Science News Letter, January 12, 1946

CHEMISTRY

New Chemical Compound Dyes Nylon Thread Cheaply

► NYLON THREAD may be dyed cheaply by use of a new chemical compound in the alkyl phosphate family with which successful tests have now been completed. It will be known as Phosphate No. 12, and is the result of work of scientists in the laboratories of the Victor Chemical Works in Chicago Heights, Ill.

The chemical is a dye-carrying penetrant which simplifies the dyeing process, company officials state. It can be used in equipment already standard in modern dyeing plants. In addition to providing even penetration of the nylon thread or yarn under treatment, the new phosphate is foam-free, an objective toward which chemists have been working for years. It is stable in the presence of both acids and alkalis, and is non-ionic or neutral in electric charge, it is claimed.

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CHEMISTRY

Silicone Oils Flow At Minus 121 Degrees

► SILICONE oils suitable for use as hydraulic fluids in aircraft systems, that will continue to flow at 121 degrees below zero Fahrenheit and do not oxidize or sludge at 302 degrees above zero, have been developed in the General Electric laboratories in New York. They can be used also in fine instruments, watches and clocks, and as an insulating fluid in certain electrical apparatus.

These oils are prepared with methyl silicone polymers, according to Dr. Eugene G. Rochow of the General Electric Company. He explained that these polymers, in the form of elastomers, produce a silicone rubber that does not decompose at 400 degrees Fahrenheit or harden at 67 degrees below zero, and maintains its elasticity under load over long periods of time at the high temperature of 302 degrees.

Science News Letter, January 12, 1946

IN SCIEN

CARTOGRAPHY

Terrain Models Made With Two New Devices

► CONSTRUCTION of three-dimensional terrain models, long known to map makers, but too costly and inaccurate for popular production, has been revolutionized into a science, with the invention of two devices, the Atcorob and the Orthojector. Designed and constructed during the war to prepare models for operational planning, these inventions permit production of accurate and detailed models of any area on the globe.

The Atcorob is an ingenious device that accomplishes in two operations what formerly required eight different procedures. Contour lines from a topographic map can be quickly and accurately indicated on a block of solid plaster and reproduced by carving down to the surface of the image. Contours appear on the model exactly as on the map except that they are three-dimensional.

"No other device or method of construction has approached the Atcorob in ability to reproduce terrain features," said Maj. Wallace W. Atwood, Jr., Chief of the Staff Service Model Section of the War Department.

The Atcorob was conceived by Maj. Atwood, Prof. H. L. Cooke of Princeton University and Capt. A. H. Robinson, Chief of the Map Division of the Office of Strategic Services. It takes its name from the first two initials of the inventor's names. The equipment was designed by Prof. Cooke and Dr. R. Prickett, and constructed by them at the Palmer Laboratories in Princeton, N. J.

The Orthojector, devised by the same group, is helpmate to the Atcorob and makes possible a projection of map or photo transparencies onto the surface of any type relief model. Information may be transferred onto a flat or irregular surface without the distortion obtained in the previous single-lens projectors.

The information projected onto the surface is in its correct position. Roads go through correct passes, rivers through their valleys. The Orthojector is the only instrument thus far produced which assures accurate projection such as this on a relief surface.

Science News Letter, January 12, 1946

CE FIELDS

MEDICINE

Heavy-Weight Carbon To Aid Medical Research

► FOR USE in research on cancer, diabetes, arterial, heart and other diseases, carbon of atomic weight 13 will be produced in substantial quantities, the Sun Oil Company and the Houdry Process Corporation announced.

This heavy carbon isotope has been used in biochemical research for the past two years and now two plants are to be constructed to produce it in larger quantity, increasing from 500 to 1,000 times the world supplies of this chemical element.

Carbon 13 is concentrated by thermal diffusion, separating it from ordinary carbon 12. The new plants will bring the cost down to about \$40 a gram, whereas the experiments were started with less than a half-gram which cost several thousand dollars to concentrate.

Carbon 13 serves as a tracer in chemical reactions in living and non-living material since by its different weight it can be spotted and told from ordinary carbon.

The work was initiated and carried on by Dr. Aristid V. Grosse of the Houdry organization, assisted by Dr. E. A. Smith, Houdry research director, Dr. Stanley P. Reimann, director of the Lankenau Hospital Research Institute of Philadelphia and others in these two organizations.

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PSYCHOLOGY

Talking Books Make Reading Quicker for Blind

► BLIND children in the third and fourth grades "read" about three times as fast with talking books, which are simply a series of phonograph records, as in braille, where the alphabet is represented by a pattern of dots embossed on paper.

But this does not mean that talking books should replace braille in schools, states Dr. Berthold Lowenfeld, Director of Educational Research of the American Foundation for the Blind. In the upper grades, students who have become proficient in braille get more out of reading difficult material in the dot-

pattern than from listening to talking books.

While less bright blind children in the third and fourth grades understand the lesson better when talking books are used, in the sixth and seventh grades blind pupils of low intelligence get more out of textbook material when reading braille. Braille can be read at the pupil's own rate of comprehension, while the records must be played at a definite speed irrespective of the child's ability to understand the subject matter.

Both braille and talking books should be improved, however, Dr. Lowenfeld believes. Better methods of teaching would enable the pupil to read braille more rapidly. Talking books can be made more interesting and hold the listener's interest better by using sound effects and, perhaps, dramatizations.

Tests to compare the advantages of talking books and braille reading were given to 481 children in 12 schools for the blind.

Science News Letter, January 12, 1946

ANTHROPOLOGY

Fossils of Early Man Survive Japanese War

► INFORMATION received by Dr. Franz Weidenreich of the American Museum of Natural History indicates that fossil skulls and other remains of very early human types, in areas overrun by the Japanese during the war, have survived the vicissitudes of conquest and reconquest.

From his long-time co-worker, Dr. G. H. R. von Koenigswald, who just before the war had made several significant finds of ancient human fossils in Java, he has had a letter telling of hardships endured during the Japanese occupation, but stating that only one of the skulls from the Mgandong site had been taken to Japan and presumably lost. All the others were again in his possession, and at the time of writing (Oct. 23) he was hoping soon to return to his digging.

Frank Whitmore, a colleague of Dr. Weidenreich's, found in the Imperial University of Tokyo a collection of bones and artifacts from Choukoutien, China, the place where Peking Man was first discovered, together with the original research records of Dr. Davidson Black, who first made systematic excavations at that site, and other important papers. Arrangements are under way for the return of this important scientific material to the institution to which they belong, Peiping Union Medical College.

Science News Letter, January 12, 1946

PSYCHOLOGY

Rats Housed in Groups More Likely to "Freeze"

► WHEN laboratory rats aggravate experimenters by "freezing" or playing dead instead of running through a maze, it may be the result of living with other rats.

The habit of some rats to simply sit at one point in the maze instead of trying to find their way out has in the past been ascribed to emotional disturbances or "pure cussedness." But Dr. Bernard F. Riess of Hunter College decided to put the matter to a test.

Two groups of rats were used in his experiments, one group lived in "tenements," six rats to a cage, while the others were given private quarters. Fighting was common among the "room-mates."

The "freezing" behavior was indulged in by 18 of the 124 rats living in groups, Dr. Riess states in the journal, *Science*, while only two of those from the private quarters had acquired the annoying habit. Fifteen of the rats that "froze" were consistently victims of aggression in the household fighting, only three were dominant or habitual winners.

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ENGINEERING

Electrodes in Sparkplugs Now Grow with Use

► SPARKPLUGS with electrodes that grow with use instead of wearing away, and a new airplane ignition system for high-altitude flying, are recent contributions to aviation developed by the electrical engineering department of Yale University. The life of the sparkplugs is considerably lengthened by the development, and in the new system they are fired by radio frequency currents.

The special electrodes with which the sparkplugs are equipped grow in physical length as they are used, by approximately the same amount that the ordinary electrodes wear away. This keeps the spark gaps more nearly constant, and doubles the length of life of the plugs, it is claimed.

The principal feature of the new ignition system is the use of high-frequency currents to fire the new sparkplugs. The two developments constitute a valuable combination in planes, particularly at extremely high altitudes. They were developed at Yale by Gregor Lang of the American Bosch Company.

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