

GEOLOGY

Airplanes to Search for Siberian Meteorite

AIRPLANES will attempt to find the great meteor whose fall in 1908 in Siberia felled a forest, burned an area over 35 miles in length and caused an earthquake.

The meteorite commission of the U.S.S.R. Academy of Sciences has announced its determination to continue the search until this meteorite, considered the largest known in history of mankind, is actually found in the Siberian valley of the Podkamennaya Tunguska river.

All attempts to find the meteorite, undertaken during the past few years by a staff member of the Academy, L. A. Kulik, have so far failed. This year, the study of the area of fall will be made from airplanes. It is believed that a photo taken from an airplane in the spring when the snow vanishes and the woods are still bare, will show both the direction in which the trees fell, when swept by the fall of the meteorite, and the craters formed by the impact of the meteorite which apparently broke into several pieces during the fall.

Science News Letter, April 11, 1936

GENERAL SCIENCE

More Government Research Would Help Unemployment

ADEQUATE and generous support of basic research in physics and chemistry is of outstanding economic importance to the nation as a foundation for the further development of industry and commerce in the nation, declared Dr. Lyman J. Briggs, Director of the National Bureau of Standards, before The Franklin Institute.

"One new industry comparable with the automobile industry," said Dr. Briggs, "would bring employment back to normal. The same thing could be accomplished with a number of smaller industries of equivalent output.

"To increase employment," he added, however, "these new industries must do more than replace with a new product something already in use. They must create new things that people will want in addition to what they already have."

Basic research in physics and chemistry, Dr. Briggs indicated, is the way to find these yet-unknown industries.

Moreover, if industry is to provide a wider field for employment there must be some source of new basic knowledge to provide new facts and discoveries with which to work.

"Viewed from this standpoint," he maintained, "basic scientific research may play an important part in our national development, as a catalyzer of new industries and a stabilizer of economic tides. Is not its generous support by the Federal government warranted as a sound economic measure?"

Dr. Briggs urged that basic research in physics and chemistry be supported as is agricultural research. In the latter science over \$21,000,000 a year is appropriated by the Government for research and the new 1935 act authorizes eventually an additional appropriation of \$5,000,000 a year for basic agricultural research. Commented Dr. Briggs:

"Industry as well as agriculture is a factor in our national welfare. Both deserve the assistance of the Government in carrying out the basic research necessary for their development."

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PUBLIC HEALTH

Air "Mask" Protects From Dust, Gas, Smoke

AN AIR "mask" which would provide the rock driller, painter or chemical worker with fresh air and protect him from poisonous gases, smoke and dust while leaving eyes, nose and mouth free is described in a U. S. patent (No. 2,032,101) granted to W. D. Sullivan of West New York, N. J. The mask is literally a film or curtain of air completely covering the user's face.

Intended to perform the duties of the conventional gas mask, the novel air mask is produced by an eyeshade-like shield worn on the forehead. The visor of the shield contains an air chamber, provided with numerous outwardly slanting openings at its lower edge. When air under pressure is forced into the chamber, streams of the air issue outwardly and downwardly from these openings to form a transparent air screen or curtain completely covering the face, but spaced away from it.

With such an air film for protection, the user could pass through dust, smoke, gas, and paint fumes without any of these coming in contact with his face. The inventor further claims there would be no trouble in breathing and seeing.

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IN SCIENCE

PHYSIOLOGY

New-Found Gland Reaction Mobilizes Body's Forces

THE BODY has a special general alarm call by which it mobilizes, within forty-eight hours, its defensive forces against poisons and other damaging influences. Evidence of this hitherto unknown defense reaction was presented by Dr. H. Selye of McGill University, Montreal, to the American Physiological Society.

The "general alarm" involves three glands and may be due to a new adrenal gland hormone. The regiments of defense called out by the alarm, however, are located in the thymus gland, an organ in the chest which is large in children but grows smaller and may almost disappear with age.

The newly discovered defense action is like the immune reaction by which the body fights invading disease germs. But it is much faster and operates against poisons and other injuries as well as against germ infections. The routine of general alarm reaction consists of overactivity of the adrenal and thyroid glands, involution or shrinking of the thymus gland as it sends its regiments into the battle, and certain changes in the body's use of water. The reaction fails to occur when the adrenal glands are missing. It is not due to adrenalin, one well-known adrenal gland hormone, nor, apparently, to the other adrenal gland hormone, cortin, Dr. Selye's researches indicate.

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ENGINEERING

Industrial Research Men To Get Franklin Medals

INDUSTRIAL research has been recognized in the selection of this year's two recipients of the prized Franklin medal of the Franklin Institute. Dr. Frank B. Jewett, director of the Bell Telephone Laboratories, Inc., and Dr. Charles F. Kettering, director of the General Motors Research Laboratories, will receive the 1936 awards on May 20.

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E FIELDS

BOTANY

Wheat Crossed With Quack Grass Makes Good Bread

QUACK grass, hated in this country as a noxious weed, has been hybridized with wheat by a Russian plant breeder, Dr. H. B. Tzitsin, the Tass Agency in the United States has been informed. The new grain grows perennially, like its quack-grass parent. This would presumably give it the double advantage of not having to be sown every year, and of covering and binding the soil against erosion with a continuous mat of roots.

Small-scale experiments with the hybrid grain indicate that it will yield more flour, bushel for bushel, than "straight" wheat. Bread baked from the hybrid grain flour is said to be of good quality and flavor.

Another of Dr. Tzitsin's hybrid wheats combines four wheat varieties in its pedigree, and is declared to be a phenomenally heavy yielder, one stalk producing as many as 400 grains. Still another hybrid wheat has been evolved for growing in the short-summered North; its grain can be matured in as little as 67 days.

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MEDICINE

Study Shows Effects of Radium or X-Ray on Cells

STUDIES which may explain some of the varying results obtained in the treatment of cancer by X-ray and by radium were reported by Dr. Shields Warren of Boston at the meeting of the American Society for Experimental Pathology.

Dr. Warren observed the way in which cells of a strain of rat cancer divided following exposure to radium of the same dosage as is used in the treatment of human cancers. He found marked variation in the way the dividing cells of the cancer responded to the irradiation.

Body tissue, both cancerous and normal, grows by process of cell division. In the case of cancer, however, the

growth continues unchecked, the cancer cells overrunning the normal ones. Irradiation, either with X-rays or radium, is of benefit in cancer because it checks the process of division by which the cells grow, finally destroying the cells.

In the rat cancer cells Dr. Warren observed that the frequency of division dropped rapidly within an hour and a half after application of the radium, reaching its lowest point during a period from two to ten hours after irradiation. The cancer tissue then recovered partially, the cells dividing at about one-third their previous rate. This level continued for about 72 hours. From ten hours onward, the cell division shows numerous cases of abnormality.

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ARCHAEOLOGY

Prehistoric Peoples Liked Strong Beer

BEEER with a solid, authoritative "kick" was favored by prehistoric peoples in Germany, probably as much as it is nowadays. Evidence supporting this idea has been found in a number of ancient drinking-vessels examined by Prof. Johannes Grüss, veteran Berlin microscopist who can tell what a man drank ten thousand years ago by examining the dried dregs left in the bottom of his drinking-horn or bowl. (*Forschungen und Fortschritte*, Mar. 20.)

In several ancient beer vessels, found in various parts of Germany, Prof. Grüss has discovered the mixture of fragmentary starch grains and yeast cells that always spells beer. With them were numerous pollen grains from honey-producing flowers. This, Prof. Grüss says, is always an indication that honey had been added to the beer while it was brewing, to give the yeasts a more concentrated sugar solution to work on, and thus produce a higher alcohol content.

The ancients in what is now Germany were not bothered with the modern brewmaster's passion for "pure cultures." The relics of fermentative organisms found by Prof. Grüss are an exceedingly miscellaneous mixture: several different kinds of yeasts, numerous species of bacteria, molds and other genera of fungi, even cast skins of a few of the lower animal forms. The old-timers apparently drank for effect, and didn't mind what was in the dregs.

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MEDICINE

Cancer Cells Not Sick, But Healthy and Vigorous

CANCER cells are not sick or diseased even though they cause illness and even death. Instead, Dr. Warren H. Lewis of Baltimore, Carnegie Institution researcher on cells, calls them "extraordinarily healthy and vigorous."

Arising from perfectly normal cells, the cells of a cancer become a new type or species, Dr. Lewis' researches show. The change occurs because of the changed environment in which the cells live, sometimes a chemical causing the cancer to form.

The idea that cancer is necessarily associated with viruses, such as cause some other kinds of diseases, is discounted by Dr. Lewis in his lecture-report to the Carnegie Institution of Washington.

Dr. Lewis has concluded:

The cells of these tumors are easily recognizable when grown outside the body. They are different from normal cells. There are a number of different cell types in these chemically induced tumors. They apparently breed true to type. The same type of cell can be recognized in cultures from serial transplanted tumors for generation after generation. All traces of the chemical which caused the original tumor soon disappear from these later generations of cells descended from the original tumor cells.

"The most characteristic property of malignant cells is their uncontrolled multiplication in the body," Dr. Lewis pointed out. "All normal cells are under control of some sort. The nature of the control mechanism is obscure but fundamental for all multi-cellular organisms. It begins at the two-cell stage and continues throughout life. It is inherited. New types of cells like the malignant ones have no natural place in the animal organization, hence it is not surprising that they are not subject to the same laws of control as normal ones."

Dr. Lewis, in discussing tumors that may be produced by viruses, said:

"A sharp line of distinction can be drawn between the true tumors on the one hand and the bacterial and virus tumors on the other because the continued presence of the causative agents is probably necessary for the growth of the latter."

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