

PHYSICS

Oreston Suggested as Name For New Positive Electron

A NAME is wanted for the newest particle discovered by science, the positive electron. "Positron" has been suggested and is widely accepted. But many scientists object to it, on the grounds that it lacks proper character. Prof. Niels Bohr in his talks to the California Institute of Technology, where the positive electron was discovered, pointed out the desirability of a new name and mentioned "anti-electron" as a possibility but did not urge it. He said it had the advantage that it suggested the fact that the positive electron is, in a sense, merely the absence of the negative electron.

The most brilliant suggestion, however, has come from Prof. Herbert Dingle, visiting here in Pasadena from the Imperial College of Science and Technology in South Kensington. He recalled the fact that Electra had a brother Orestes and surely the positive and negative electrons are like brother and sister. He therefore suggested the name "Oreston" for the positive electron.

The appropriateness of this suggestion becomes especially apparent when one realizes that the oreston as observed in physics, does not have a long life but very soon combines with an ordinary electron. The two annihilate each other. As they disappear, their energy is given out in the form of light quanta.

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ENDOCRINOLOGY

Brain Gland Secretion Found Cause of "Pop-Eye" Goiter

A NEW HORMONE of the pituitary gland that exercises control over the thyroid and seems to "double" for the secretion of that gland producing exophthalmic goiter was a leading topic of discussion among medical scientists at the meeting of the Federation of American Societies for Experimental Biology.

As one doctor expressed it: "The pituitary gland is in the driver's seat."

It is small but important, located at the base of the brain. It produces many powerful hormones or chemical regulators of the body's activities. Some of these hormones have an important stimulating effect on the sex glands. Another hormone promotes growth.

The latest discovery is a new hor-

mone that influences the secretion of thyroid gland. Exophthalmic goiter, characterized by extreme nervousness and protruding eyes, results from over-secretion of the thyroid gland. Now scientists have found the newly discovered pituitary hormone can produce the same effect.

For the first time scientists have been able to produce this type of goiter in animals, which will greatly aid further research on this serious and widespread disease for which the only relief at present is surgical operation.

Daring French scientists have reported that they produced exophthalmic goiter in human beings by doses of the latest pituitary hormone.

The first announcements of the new hormone received little recognition even from scientists.

But now the full significance of the new hormone is apparent and in many research centers studies are being made upon it.

Whether or not future treatment of exophthalmic goiter will be directed toward the pituitary instead of the thyroid gland cannot be determined from these early investigations.

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BACTERIOLOGY

Greased Bacteria Pay Toll To Get Through Filters

BACTERIA slipping through the pores of fine-grained porcelain filters, with their way "greased" by the pure protein "K medium" developed by Prof. Arthur I. Kendall of Northwestern University Medical School, must pay toll before they can pass. This has been discovered by O. F. Edwards of Michigan State College, who reported on his experiments to the American Association for the Advancement of Science.

Mr. Edwards found that none of the bacteria in the first twenty milliliters (somewhat less than an ounce) of the culture fluid got through the filters, but after that their living cells appeared on the other side. The explanation he suggested was that the bacteria were caught and held on the inner surfaces of the fine pores in porcelain. After a certain number were thus captured, the porcelain surface could hold no more, and the later comers passed on scot-free.

Mr. Edwards presented his paper before the Phi Sigma Society.

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IN SCIENCE

BOTANY

Plant Breeder Creates New Tomato Species

E VOLUTION finds fresh supporting evidence in a tomato species that has been artificially produced by Prof. E. W. Lindstrom of Iowa State College, Ames. Prof. Lindstrom started with a tomato variety whose cells contained only half the normal number of chromosomes, the material bearers of heredity. By inbreeding it, he produced another variety with the full normal number, and by inbreeding again he secured a line of plants with a double number of chromosomes.

This latter group of plants is different in leaves and fruit from other tomatoes, and it refuses to be cross-bred with them. Fundamentalists doubters have often challenged scientists to produce a new species of plants. Since distinctive appearance and refusal to cross-breed are taken as marks of separate species, Prof. Lindstrom holds that he has squarely met the challenge.

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HEREDITY

Heredity Carriers are Probably Large Molecules

G ENES, the hypothetical specks of protoplasm that bear hereditary characters from one generation to the next, are probably single molecules, or atom-groups, of about the size of large protein molecules, Herbert S. Wallace of the University of Denver told the American Association for the Advancement of Science.

Genes act like organic molecules in many ways, Mr. Wallace said. They resist change and when they do change they do so suddenly. They respond to X-ray and other physical and chemical factors very much as organic molecules do. And their measured distances apart on the chromosomes, something on the order of one five-millionth of an inch, is approximately the known size of certain large protein molecules.

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CE FIELDS

METEOROLOGY

Long-Range Forecast Efforts Make Use of Sunspots

EXPERIMENTS in the long range forecasting of weather at the Scripps Institution of Oceanography, La Jolla, Calif., may possibly be extended to take in factors such as sunspots and solar radiation, in addition to the data on oceanic and atmospheric phenomena. This was indicated by Dr. George F. McEwen, professor of physical and dynamical oceanography at the Institution, who spoke in Vancouver, B. C., before the meeting of the Fifth Pacific Science Congress.

"We are ready to make any use," Dr. McEwen stated, "of the extensive work on solar radiation and sunspots that we find to be of help. The cyclical nature of the action of the planets on the sun in producing sunspots and the possible direct electrical action of the sun in producing vortices in the earth's atmosphere afford a field that should be thoroughly investigated. Finally, the long period ocean tides depending upon changes in planetary configurations may have some forecast value, and are being investigated by others."

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CHEMISTRY

Dangerous Gas Found In Pittsburgh Air

SULFUR DIOXIDE in concentrations as high as 2.5 parts per million of air was found in tests of the atmosphere of Pittsburgh by C. E. Betz and J. H. Holden of the Pittsburgh Testing Laboratory and J. O. Handy of New York City, their report to the American Chemical Society, shows.

This maximum amount of the gas was found in the morning about 9 o'clock, the maximum for the afternoon being 1.6 parts per million.

Sulfur dioxide has been found by scientists of the National Bureau of Standards to be seriously harmful to property, and it may also have a bad effect on health.

Concentrations as low as 2 parts per million, less than that found in the morning air of Pittsburgh, were found by the Bureau of Standards workers to have a marked injurious effect on books, leather, paper and similar materials within ten days time. The new archives building in Washington, now being erected to house the documents of the Government, is being provided with means for washing the air with an alkaline wash to remove this injurious material.

The section in Pittsburgh where the tests were conducted is believed to be typical of industrial communities, for it contains within the radius of a city block two large garages, a large dairy products plant, a school, a hospital, and a small manufacturing plant. It is in a thickly populated section, approximately one-half mile from the business district.

Sulfur dioxide is formed in the burning of coal, and the highest amounts were found on mornings when there was a heavy blanket of fog and smoke with little or no wind velocity.

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ZOOLOGY

Collectors' Paradise Found On "Haunted" Peak

ASCENT of a "haunted" mountain in Siam, greatly feared by superstitious Siamese natives, is reported by Dr. Hugh M. Smith, who has just sent extensive zoological collections to the Smithsonian Institution.

Dr. Smith, who is fisheries adviser to the Siamese Government and collaborator of the Smithsonian Institution, ascended the mountain and found on the top a collector's paradise.

On the flat, grassy summit were pine and chestnut trees garlanded with hanging orchids and with gibbons swinging among the branches. The "spirits" of this cloud-land forest were chattering monkeys, barking deer, rare giant squirrels, porcupines, and bamboo rats. Black bears made their nests in chestnut trees and ate the nuts. Flocks of imperial pigeons and other rare birds were there.

From this and other expeditions in Siam, Dr. Smith collected insects, birds, reptiles, and mammals which he has shipped to the Smithsonian. It is believed that some of the Siamese species will prove to be new to science.

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ENGINEERING

Thirsty Bricks Prevent Leaky Walls

TO AVOID leaky walls, use absorbent, "soaky" brick and make the mortar joints thin. These recommendations were made by Prof. W. C. Voss of the Massachusetts Institute of Technology, who spoke before the meeting of the American Society for Testing Materials.

The brick should be able to absorb from 5 to 10 per cent. of its weight in water in two days; and most of this absorption should take place in the first ten minutes of soaking. The bricks' ability to "drink water" insures good bonding with the mortar, making the wall into practically one solid piece. There should be some lime in the mortar to insure this action, Prof. Voss recommended.

Brick structures are commonly thought of as being stiff and unyielding, and likely to crack suddenly under heavy loads. Yet brick masonry beams built and tested under the supervision of Prof. M. O. Whitney of the University of Wisconsin showed astonishing degrees of flexibility. The bricks were laid in a mortar containing a high proportion of Portland cement, on various types of steel framework which served as reinforcement after the masonry beams had solidified.

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PHYSIOLOGY

Auto Gas May Harm Unborn Children

CARBON monoxide, deadly gas of closed garages, may take toll of unborn young, studies reported at Chicago before the Phi Sigma Biological Research Society by Lloyd L. Wells and W. E. Batchelder of the University of New Hampshire indicate.

Messrs. Wells and Batchelder, with their associates, gave repeated doses of an atmosphere containing one and one-half per cent. of carbon monoxide to female rats about to produce litters of young. Some of the litters were born prematurely, others were absorbed back into the mother's body and not born at all. Many of the young rats that were born alive were not normal.

It was found that a rat could build up a resistance to carbon monoxide, but this resistance was only temporary.

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