

retary. Dr. Fred E. Wright of the Carnegie Institution, of Washington, former vice-president, became home secretary. Dr. W. B. Cannon of Harvard Medical School was re-elected to the Council of the Academy, and Dr. Roger Adams of the University of Illinois was chosen as his associate on the Council.

One Foreign Associate was elected by the Academy: Dr. Peter Debye, experimental physicist of the University of Leipzig, Germany.

New members were elected as follows: Henry Bryant Bigelow, Museum of Comparative Zoology, Cambridge, Mass., oceanography; Edwin Broun Fred, University of Wisconsin, Madison, Wis., bacteriology; Edwin Crawford Kemble, Harvard University, Cambridge, Mass., physics; Adolph Knopf, Yale University, New Haven, Conn., geology; Robert Harry Lowie, University of California, Berkeley, Calif., anthropology; Joseph Haines Moore, Lick Observatory, Mt. Hamilton, Calif., astronomy; Robert Lee Moore, Austin, Texas, mathematics; Hermann Joseph Muller, University of Texas, Austin, Texas, genetics; George Linus Streeter, Department of Embryology, Carnegie Institution, Baltimore, Md., embryology; Margaret Floy Washburn, Vassar College, Poughkeepsie, N. Y., psychology.

Science News Letter, May 9, 1931

ZOOLOGY

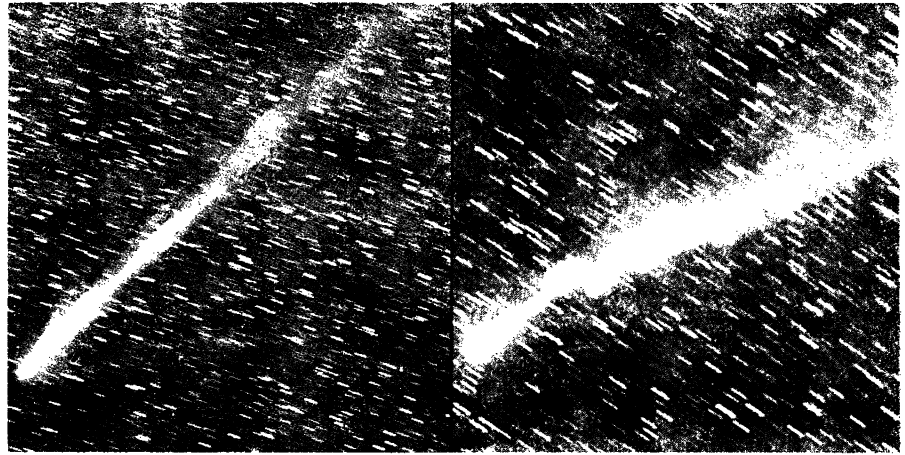
Python Likes New Home; Lays Clutch of Eggs

ONE OF the big pythons in the U. S. Zoological Park recently celebrated her transfer to the more comfortable and homelike quarters of the new reptile house there by laying a clutch of twenty eggs.

The picture on the cover of this issue of the SCIENCE NEWS LETTER shows her exercising the serpentine version of maternal care: most of the time, as a matter of fact, the eggs are kept quite invisible beneath her coils. The eggs, like many reptile eggs, have tough, parchment-like shells rather than the hard limy coverings characteristic of bird eggs.

Science News Letter, May 9, 1931

The cost of accidents in the United States is in the end paid by the ultimate consumer, and amounts to \$20 a year for each person in the country, declares the president of the National Safety Council.



HOW A COMET BREAKS UP

The comet 1908c on successive days, October 14 and 15, showed this mysterious and rapid change in its appearance through the ten-inch telescope of the Yerkes Observatory. Now for the first time an explanation has been given. In agreement with Maris' new theory, a great magnetic storm occurred on the earth at the same time.. Surges of ultraviolet light from the sun are believed to cause both effects.

ASTROPHYSICS

Pressure of Sunlight Strong Enough to Break Comet in Two

GR^{EAT} outbursts of ultraviolet light from the sun may press so hard on the tail of a comet as to break it in two. This is the theory presented in Washington before the American Geophysical Union by Dr. H. B. Maris of the U. S. Naval Research Laboratory.

The curious fact that sunlight can cause such huge pressures as this is at the basis of Dr. Maris' new theory of the irregular variations of brightness observed in comets. During periods when many sunspots are visible, the ultraviolet light streaming out from the sun may increase as much as a thousand times.

The atmosphere of a comet is transparent to visible light but strongly absorbs ultraviolet light which, because of this absorption, exerts a pressure on it. The effect on the comet is to create a strong wind in its atmosphere moving away from the sun. Thus that part of a comet that feels the pressure most may get a violent jolt when a new whirlpool appears in the sun.

Magnetic storms, those great fluctuations of the earth's magnetic forces, often accompany or anticipate the unusual changes in comet activity. Since the magnetic effects are known to be due to the ultraviolet surges associated with bright spots on the sun, this forms additional support for the new theory of comet behavior.

Comet activity shows itself by changes in the brightness of the atmosphere of the comet, similar to those observed on the earth during a display of the aurora or northern lights. The aurora is caused by increased ultraviolet light from the sun, said Dr. Maris. It occurs at the same times as the magnetic storms.

Dr. Maris studied records of the great comets of last century. He found that the splitting of a comet was accompanied or preceded in nearly every case by a great magnetic disturbance on the earth.

The great comet of 1882 met a tremendous solar disturbance at the time of its approach to the sun. Dr. Maris believes that this was the cause of its subsequent disruption.

Science News Letter, May 9, 1931

PHOTOGRAPHY-MEDICINE

New Camera Photographs Disease in Ear

THE INTERIOR of the human ear can now be photographed with a new camera developed by Dr. Richard Millar, director of the photography division of the Methodist Hospital of Indianapolis.

The ear camera is hailed by the medical world as a distinct step forward in the treatment of ear diseases. For the

first time in medical history a pictorial record of different stages of ear diseases can now be kept.

The camera takes pictures 120 times as large as the inner ear. With the use of a special concave mirror, a powerful beam of cold light is focused ingeniously into the patient's ear. The exposure is made through a hole in the center of the reflecting mirror which is turned to deflect the light from the lens of the camera.

Heat is extracted from the light beam by passing it through a flat glass flask filled with ice water before it reaches the ear.

A clever ground glass arrangement fitted into the side of the camera enables the surgeon taking photographs of the inside of an ear to see the image which is passing through the camera lens even when he is operating the shutter. Thus he can see exactly the image that falls on the plate or film.

Dr. Millar is now at work on a camera which will take the picture of the back of the eye. He predicted that soon a camera will be developed that will photograph the interior of the human head from the inside.

Science News Letter, May 9, 1931

Montana has one county seat, Jordan, which is more than 90 miles from a railway.

To collect specimens of the rare goat-antelope called the takin is one special aim of the Marshall Field Zoological Expedition now in Southern China.

PHYSICS-BIOLOGY

Lifeless Drops Can Act as if They Had Life in Them

Mathematical Possibility of Mineral Drops Growing and Dividing May Explain So-Called "Artificial Cells"

DROPS of lifeless solution, suspended in another solution equally lifeless, can act as though they had life in them. They will increase in size, then divide, and the "offspring" drops in their turn grow and divide again.

The possibility of this and other lifelike behavior was demonstrated on mathematical grounds by Dr. N. V. Rashevsky of the Westinghouse Research Laboratory, East Pittsburgh, Pa., before the American Physical Society. Dr. Rashevsky has not carried out experiments to demonstrate his theory, but the principles he laid down may be the general explanation for such special cases of "artificial cells" as those shown by Dr. George W. Crile at the Cleveland meeting of the American Association for the Advancement of Science last winter.

The growth and division of the imaginary, artificial, lifeless cells were all accounted for by Dr. Rashevsky on the simplest of physical assumptions. That a cell may keep its shape intact through changes was also explained.

"One of the most fundamental phenomena of life, if not the most fundamental one," said Dr. Rashevsky, "is the multiplication of a cell through division. All the facts of growth and multiplication of more complicated and highly developed organisms reduce in the last analysis to the growth and division of single cells."

Instead of attempting to give a detailed theory of such complicated phenomena, Dr. Rashevsky decided to investigate first some intentionally oversimplified cases, which are never found directly in nature. It is through the study of intentionally oversimplified arrangements that progress has been achieved in other exact sciences.

"Let us for a moment forget about actual living cells," Dr. Rashevsky said, "and investigate mathematically whether it can happen, and, if so, how it can happen, that a small liquid drop will spontaneously divide into two parts."

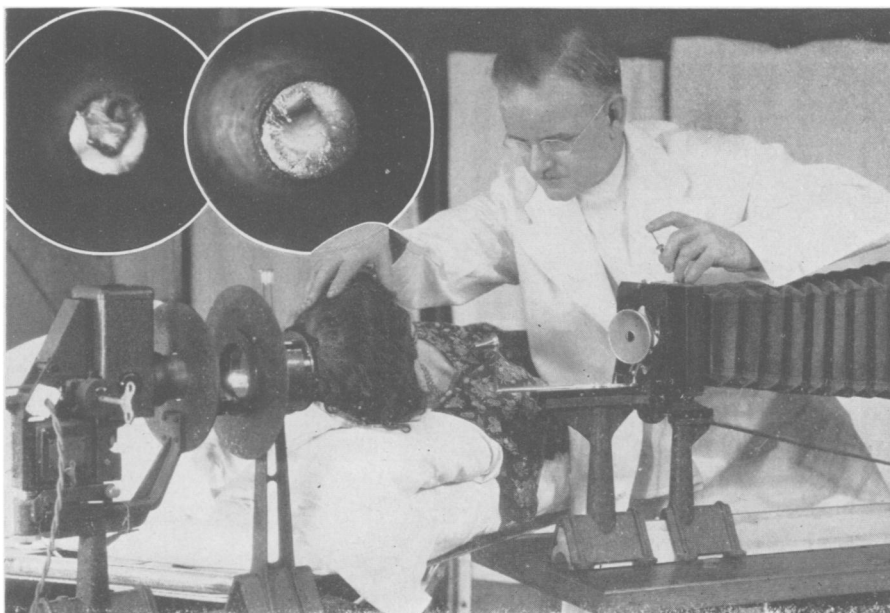
"It is found that such spontaneous division cannot occur, if the drop is in a perfectly resting state and is not undergoing any changes."

"Consider the case that a drop, which is surrounded by another liquid, interacts chemically with this liquid, so that the amount of liquid which constitutes the drop increases, just as would be true with a small organism. If the drop thus grows at the expense of certain substances, contained in the surrounding liquid, then under some very general conditions, the drop will divide into two on reaching a certain size. Each half will then again grow up and again divide and so on."

Generations of droplets showing an evolution to more and more complicated chemical constitution can thus be formed without the interference of the experimenter. This happens when the intervals between the successive divisions are unequal.

The number of drops may increase continuously as long as substances necessary for growth are in the surrounding liquid. "Life" persists so long as "food" is available.

Science News Letter, May 9, 1931



PHOTOGRAPHING THE INNER EAR WITH COLD LIGHT

The insert to the left is a photograph made with the new camera of a diseased ear while the other insert shows a healthy ear.