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.

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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 over-simplified cases, which are never found directly in nature. It is through the study of intentionally over-simplified 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.

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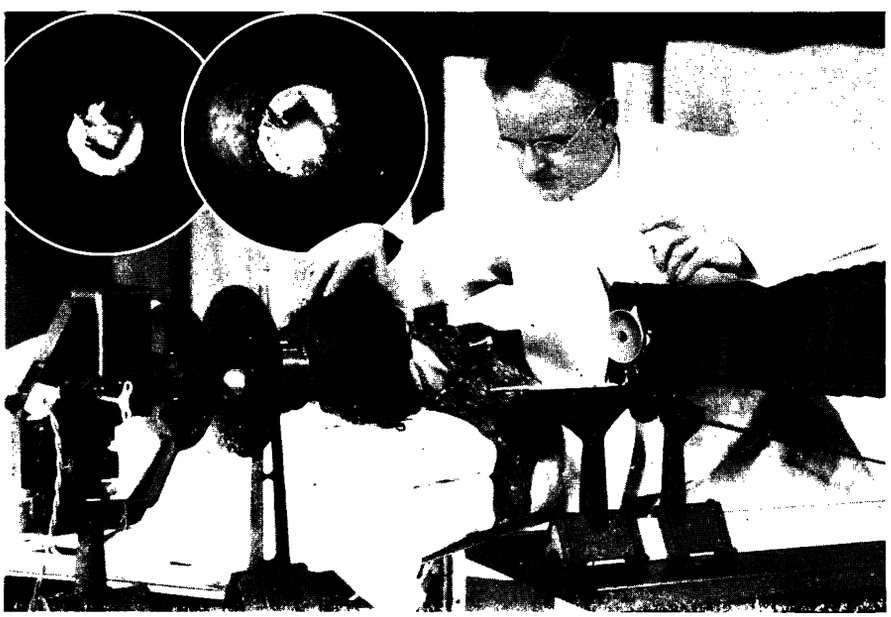

PHOTOGRAPHING THE INNER EAR WITH COLD LIGHT

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.