MEDICINE

Detached Retina Blindness Curable in Half of Cases

Loosened Sight-Tissue "Spot-Welded" Back Into Place With Electric Needles Probing Through the Eyeball

BLINDNESS caused by loosening of the retina, the actual seeing part of the eye, can be cured or at least benefited by operation in nearly 50 per cent. of all cases. So Drs. J. H. Dunnington and J. P. Macnie of New York City reported before the meeting of the American Academy of Ophthalmology and Otolaryngology. The New York surgeons described their results in operations on a series of 150 patients.

The retina, the light-sensitive lining of the eye, is an exceedingly thin, delicate film of living tissue. It may be compared to the photographic film or plate in a camera. It rests on a tissue called the choroid, which contains many blood vessels. From this the retina gets its blood supply.

Sometimes the retina becomes detached from the choroid, peeling off as wallpaper does from a wall. When this happens, the retina fails to get enough nourishment and cannot function properly. The patient feels as if a curtain were falling over part of his eyes and he has increased difficulty in seeing. The retina may not become wholly detached, but if not treated it will as a rule eventually all peel off.

Common Among Boxers

The exact cause of detached retina is not known. It may result from an injury; among boxers it is a common accident. Drs. Dunnington and Macnie reported that nearly a third of their patients were suffering from the condition following injuries.

The most common contributing cause was nearsightedness, which was present in two-thirds of the patients.

Modern treatment of detached retina is based on a method first proposed by a Swiss surgeon, Dr. Gonin. It is analogous to spot welding, the idea being to seal the retina back onto the choroid by cauterization, which produces an adhesive inflammation between them.

One modern method of doing this is by driving many tiny platinum-iridium needles into the choroid. These needles carry an electric current of from 30 to 50 milliamperes, which does the cauterizing. In early cases this method gives as high as 70 to 80 per cent. of cures.

If the retina has been detached from the choroid too long, however, it loses its power to function, and the patient cannot see even after the retina has been re-attached. Consequently the greatest percentage of cures are among early cases.

The operation for treating detached retina is now being performed in all the major clinics in this country.

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ARCHAEOLOGY

Mayan Heirlooms Sacrificed For Rain

ABOUT thirty years ago a dredge was lowered into the Mayan Well of Sacrifice at Chichen Itza, Yucatan, and a quantity of extraordinary objects of gold, jade, and other substances was brought up. The articles, many of them beautiful, showed the sort of things that Mayan Indians brought from their homes and temples to offer to the rain god, long ago. It was their way of warding off, or battling, drought. They were invoking the god to send rain to the growing corn. Bones of young girls, who had been hurled into the well to become brides of the god, also came up in the maw of the dredge.

Since then the mystery of the Sacred Well, suddenly lightened by these discoveries, has clouded again. That is to say, the objects salvaged from its depths became involved in a new atmosphere of mystery. Some, at least, found their way to the United States to a scientific collection. But scientists are still waiting to see the first official report describing the sacrificial contents of the well.

Now and again, flashes of information appear, suggesting the remarkable points of interest which this collection contains.

That the sacrifices poured into the Sacred Well were foreign objects, brought hundreds of miles to northern Yucatan, is told by Prof. Alfred M. Tozzer of Harvard University in the new scientific publication, *Maya Research*.

There was foreign trade on both sea and land in the Mayan country, Prof. Tozzer states. On his fourth voyage, Columbus met a trading canoe eight feet wide. Citing the contents of the Well of Sacrifice as evidence of long distance trade in early America, Prof. Tozzer says the greatest number of the articles were "more Mexican in feeling" than Mayan.

Ideas of time as well as of space are suggested by the objects. Some of the carvings of jade are like relics from the old Mayan Empire of southern Yucatan.

"Not only did they have to travel hundreds of miles to reach Yucatan," it is explained, "but they were hundreds of years old at the time they were offered as sacrifices. From generation to generation these jades undoubtedly were handed down as heirlooms."

It is easier in a year of drought, like this, to understand the intense feeling of the Mayan Indians when they offered to the god of rain the loveliest of the maidens and the family heirlooms as well.

Science News Letter, September 22, 1934

CHEMISTRY

Next-to-Heaviest Element, Protactinium, Is Isolated

ISOLATION of the heavy element protactinium* has been achieved, Dr. Aristid Von Grosse, Assistant Professor of Chemistry, University of Chicago, told the American Chemical Society.

Protactinium is the first chemical element to be isolated in the United States, although several elements have been claimed to be discovered here, Dr. Von Grosse declared.

The newly isolated protactinium is next to the heaviest element known, which is uranium with atomic number 92. Protactinium is number 91 and its atoms weigh 231 times as much as those of ordinary hydrogen. It is radioactive and continually breaks down like uranium and radium.

Protactinium's half period, or the length of time in which it disintegrates to half the original amount, is 32,000 years. Radium is much shorter lived, having a half period of 1,600 years, declared Dr. Von Grosse.

*The name of element 91 is variously spelled protactinium or protoactinium (British), and occasionally proactinium.

Of importance to scientists everywhere is the possibility that the famous super-heavy element number 93 of Professor Enrico Fermi, may be an isotope of protactinium. Personally, Dr. Von Grosse said, he believes this to be the case.

The work of isolating protactinium was begun three years ago, when three tons of radium residues were imported from the world's oldest radium factory at Joachimstal, Czechoslovakia. From a ton of these residues and at a cost of $5,000, Dr. Von Grosse obtained one-tenth gram of pure protactinium while working with M. S. Agruss.

A tiny sample of the rare substance was exhibited to chemists in Cleveland, Ohio. It is a thin coating of proactinium on tungsten wire and sealed in a glass bulb. A magnifying glass is needed to see it.

Dr. Von Grosse is but 29 years old, born in Riga, Russia, reared in Shanghai, where his father was Russian Consul, and educated in Berlin at the Institute of Technology, where he won the degree of Doctor of Chemical Engineering in 1927.

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METEOROLOGY

Autumn Hurricanes Fewer After High Summer Barometer

HURRICANES, that in autumn months come swooping out of the Caribbean to devastate coastal towns of the Southeast and Gulf States and harry the shipping off the Carolina capes, will be fewer in number this season. At least, this prophecy will hold good if the correlation between summer barometric pressures and autumnal tropical storms over the Antilles worked out statistically by Clifton L. Ray of the San Juan, P. R., office of the U. S. Weather Bureau remains as valid as it has in the past.

Mr. Ray's studies have been based on summer barometric pressures over Puerto Rico and the incidence of storms over the "too-oft-hurricanoed" isle. But he adds, "The results, while referring only to the Eastern Caribbean, are generally applicable to the entire area, including the Gulf and Central American waters."

The "North Atlantic high" is a familiar fixture on summer meteorological maps. Each year, as the sun reaches its farthest north, a large, stubbornly stationary area of high pressure develops, centering in the general region of the Azores islands. It hangs over the ocean until at least the end of July, and its autumnal break-up is usually the signal for the procession of tropical storms, frequently of hurricane intensity, to begin marching in through the Caribbean and thence either over the Gulf or up the South Atlantic coast of the United States.

Mr. Ray has found that when the summer pressures due to this "high" are persistently above normal, there is 73 per cent. probability that autumnal tropical storms will be fewer than normal. Conversely, when the summer pressures are lower than normal, more than the usual number of tropical disturbances can be expected to follow.

Calling attention to the fact that during the present year the oceanic "high" has had pressures decidedly in the upper brackets ever since April, Mr. Ray suggests that it will be of interest to observe the outcome of the present season. Thus far there has been only one tropical storm in the Eastern Caribbean area.

Mr. Ray will discuss his results in a communication to be published in a forthcoming issue of the *American Meteorological Bulletin.*

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ASTRONOMY

Flight of Solar Bomb Shown in Motion Pictures

MOTION pictures of a huge "bomb" about 25,000 miles long that shot out from a sunspot on June 19 and then exploded above the solar surface were shown to members of the American Astronomical Society meeting at Connecticut College. The films were made by Robert R. McMath and R. M. Petrie, at the McMath-Hulbert Observatory of the University of Michigan. This is an observatory established by a group of devoted, though non-professional, astronomers especially for taking astronomical motion pictures.

The pictures displayed were the first results shown of the work of the "spectroheliocinematograph," an attachment for the telescope which permits motion pictures to be made of the sun in the light of a single wavelength. The light of glowing hydrogen is normally used, so that the films show the distribution of that element in the sun's atmosphere.

When projected at the usual rate the motion is speeded up about 450 times. Thus changes that would have taken many hours to observe while watching the sun are shown in a few minutes.

According to Mr. Petrie, the sunspot had been under observation for several hours, when a long, dark, wedge-shaped cloud suddenly formed, projecting outwards. It swept out at a calculated speed of about 25 miles a second, and after about 12 minutes it disappeared, leaving near it a dark stream, perhaps some of the same material, which was sucked into the spot at a speed which increased to about 200 miles a second.

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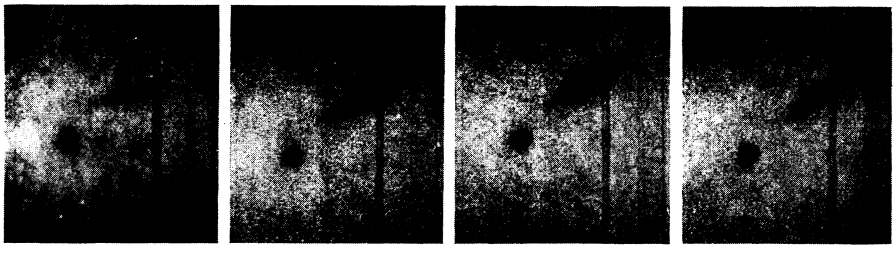

A SOLAR BOMB

Recorded by the light of hydrogen on motion picture film, this emission of a "solar bomb" from a sunspot was made available for the leisurely study of astronomers by scientists at the McMath-Hulbert Observatory of the University of Michigin. The frame at the left shows the sunspots at 2.27.30 p. m., Eastern Standard Time, just before the appearance of the bomb. The next, taken 4 minutes, 10 seconds later, shows the dark mass just after its ejection. The next, taken 2 minutes, 5 seconds after the second, shows the bomb moving away from the spot and becoming indistinct. Finally, the last frame, taken 2 minutes, 30 seconds after the third, shows what may be the same mass of gas re-entering the spot.