

## Anniversaries of Science

**January 11, 1911.**—Kaiser William II's Society for the Promotion of Scientific Research opened in Berlin.

**January 11, 1672.**—Isaac Newton was elected a fellow of the Royal Society.

I wish we could derive the rest of the phenomena of nature . . . from mechanical principles; for I am induced by many reasons to suspect that they may all depend upon certain forces by which the particles of bodies, by some causes hitherto unknown, are either mutually impelled towards each other, and cohere in regular figures, or are repelled and recede from each other; which forces being unknown, philosophers have hitherto attempted the search of nature in vain; but I hope the principles here laid down will afford some light either to that or some truer method of philosophy.

—Isaac Newton: preface to the *Principia*.

**January 11, 1787.**—Oberon and Titania, two satellites of the newly discovered planet Uranus, were discovered by Herschel.

And deeper yet,—twelve million leagues of twilight

Divide mine empire even from Saturn's ken.

Is there a world whose light is not as my light,

A midget world of light-imprisoned men?

Shut from this inner vision that hath found me,

They hunt bright shadows, painted to betray;

And know not that, because their night hath drowned me,

My giants walk with gods in boundless day.

—Noyes: *Uranus in Watchers of the Sky*.

**January 12, 1665.**—Death of Pierre de Fermat, mathematician.

Pierre de Fermat was a man of quite exceptional position in mathematical history. Devoting to mathematics such leisure as his public duties afforded, he nevertheless published almost nothing, many of his results being known to us only in the form of brief marginal notes without proof. In editing Diophantus he enunciated numerous theorems on integers, for example,

An odd prime can be expressed as the difference of two square integers in one and only one way.

No integral values of  $x$ ,  $y$ ,  $z$ , can be found to satisfy the equation  $x^n + y^n = z^n$ , if  $n$  be an integer greater than 2.

This seemingly simple theorem has been verified for so wide a range of values of  $n$ , that its truth can hardly be doubted, but no general proof has yet been given in spite of a prize of 100,000 marks awaiting him who either proves or disproves it.

—Sedwick and Tyler: *A Short History of Science*.

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New Stone Age lake dwellers of Switzerland knew how to weave cloth and make embroidery.

## ASTRONOMY

### Sunspots on Increase

People who failed to get sufficiently sunburned last summer may have hopes for next summer, because the activity of the sun, as measured by the sun spot cycle, is still increasing and will probably continue to do so until the end of 1927 or the beginning of 1928, according to Miss Hazel M. Losh of the Mt. Wilson Observatory, California, who reports researches made jointly with Dr. Seth B. Nicholson.

Sun spots were at a minimum in 1923 and since then they have been increasing in number. During the last few months the solar activity has been about as great as in 1917, when the last maximum occurred. But there is this difference. In 1917 the spots were near the equator of the sun, as they always are when the cycle has reached its height. This fall the spots, though numerous, have been nearer the poles of the sun than in 1917, and so this indicates, it was said, that the maximum has not yet been reached. If the maximum comes about a year from now the sun spot period will be only about ten years long, a year shorter than the normal period.

Such a variation in sun spot cycle may have occurred in the past, according to Dr. A. E. Douglass, of the University of Arizona. His researches show a relation between three rings and sun activity. From 1748 to 1788, for example, Professor Douglass's studies of the trees show there were four cycles of ten years each, while in the following 42 years there were only three cycles of 14 years each.

Dr. Douglass's Studies are based on the fact that the tree rings, which represent growth of a tree during the year, vary in thickness with the amount of moisture that they receive during the growing season, and that rainfall varies with the sun spots. So by studying old trees, such as the giant Sequoias, in California, and other old trees in Arizona, the past activity of the sun may be traced.

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## PHYSIOLOGY

### Purifying Sex Hormone

Working with apparatus under pressure of five atmospheres two scientists at the University of Denver are endeavoring to isolate the female sex hormone and obtain it free from harmful impurities.

Dr. R. G. Gustavson and Hugo Krueger, reported to the American Association for the Advancement of Science that they had succeeded in dissolving the valuable substance in

liquid ammonia. Since ammonia can only be liquefied at a point far below the freezing point of water, the experimental difficulties the workers have had to overcome are obvious. Their achievement is important because it separates the hormone from cholesterol, one of its common impurities, which is not soluble in ammonia.

It is believed that the administration of the female sex hormone will be of great benefit if it can be obtained in a state free from the impurities that might cause harm when injected into the human system. In consequence its isolation in a chemically pure state has been the goal of many chemists and physiologists.

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## ARCHAEOLOGY

### Cave Man Treasured Fossil

Who was the first paleontologist, the first collector of those records of life in the rocks from which science has built up the history of the earth? Barnum Brown of the American Museum of Natural History, New York, recently reported the discovery of a 5,000,000-year-old elephant's tooth found in Grecian ruins that were once frequented by Hippocrates, the father of Medicine. He asked then: "Is this the earliest known fossil collected by man?"

Now Dr. George Grant MacCurdy of Peabody Museum of Natural History, Yale, points out that what is probably the first fossil to have been collected by man is a trilobite found by archaeologists when digging out the floor deposits of a cave near Arcy-sur-Cure in the department of Yonne, France.

"This cave was first inhabited by Neanderthal man," Dr. MacCurdy explained, "then there came in turn the Aurignacians, Solutreans, and Magdalenians generally referred to as the Cro-Magnon races. It was one of the Magdalenians who found the trilobite and left it on the cave some 20,000 years ago, at least 18,000 years before some Greek left the elephant tooth at the Asklepieion. The trilobite is incised ventrally and also bears two lateral perforations—proof that it had been the property of some Magdalenian occupant of the cave. This cave has been very appropriately christened *grotte du trilobite* (cave of the trilobite)."

Trilobites are crustaceans and first appeared in great variety in the geologic age known as Cambrian some 225,000,000 years ago, they lived through a number of geologic ages and finally became extinct during the Permian Period 75,000,000 years ago.

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