CHEMISTRY—PHYSICS

Hydrogen Becomes Helium

The metal palladium has the power of effecting the transmutation of hydrogen into helium. This is indicated in experiments reported by Prof. F. Paneth and Dr. Peters of Berlin University.

Palladium is a rare and heavy metal, similar to platinum, and has in a spongy state the peculiar property of absorbing a thousand times its volume of hydrogen gas. The hydrogen when so condensed in the pores of the finely divided metal is in an unusually active condition, perhaps because the hydrogen, which ordinarily consists of atoms joined together in pairs, is here broken up into separate atoms which then unite eagerly with atoms of other elements such as oxygen. This reaction is so quick that a tiny bit of palladium put into a mixture of hydrogen and oxygen will explode it and form water.

If the conclusions of Paneth and Peters are correct then the hydrogen atoms condensed by palladium have also the ability to unite with one another in groups of four, which constitutes the helium molecule. They passed a stream of hydrogen gas over palladium in the colloidal state in which form the maximum amount of surface is exposed, and after twelve hours of absorption they detected the main lines of the helium spectrum. As longer time elapsed the lines increased in intensity. It would require an enormous length of time to produce a sufficient quantity of helium, to be isolated and analyzed, but by using an extremely delicate spectroscope the amount of helium formed artificially by this process was estimated to be from one to ten thousand millionths of a cubic centimeter.

The transformation of hydrogen into helium, if it can be accomplished, would theoretically involve a loss in weight of eight-tenths of one per cent. The matter so destroyed would be transformed into energy and pass off as rays of light and heat. Such an annihilation of energy would produce an enormous amount of heat. According to some modern astronomers the rays of the sun and stars originate in such decomposition of matter. In the Berlin experiments no evolution of energy was observed, either because the heat was too small to be noticed or because it passed off in the form of radiation of extremely short wave lengths, like the penetrating rays coming from the sky which have been studied by Kohlhoerster and Millikan.

Science News-Letter, October 9, 1926

BIOLOGY

DAVID STARR JORDAN

Ichthyologist and Pacifist

And we would have to add a score or more of such vocational distinctions to include all the various fields of activity in which Dr. David Starr Jordan has participated. He is a standing contradiction of the common theory that a specialist must be a narrow man. He is a "humanist" in the broadest sense of the word, tolerant of all save intolerance, interested in all forms of life including the human, with a keen eye for the fossils he finds embedded in geological and sociological strata.

"I was born on the 19th day of January, 1851, in the old brown farmhouse, left unpainted in my boyhood so we children might be educated," he tells us in his interesting autobiography, "The Days of a Man." That education was a good investment for young men and women in many lands have been educated through him. Leland Stanford Junior University is his monument for he took the inchoate dream of a philanthropic millionaire and molded it into one of the great universities of America.

How he combines his interest in fishes and men he reveals in "Eric's Book of Beasts":

"If I were born a Pelican
I'd try my best to be a man;
If I were born a man, I'd wish
I might associate with Fish!
If I were born a Fish—but then
No use to wish—
Men must be men!"

Science News-Letter, October 9, 1926

ASTRONOMY—PHYSICS

Sun's Active Rays Increase

The ultra-violet rays of the sun, the part of sunlight that causes sunburn and cures some diseases, are stronger as the spots on the sun grow more numerous, and there are indications that when the eleven-year maximum of spots is reached within the next year or so, the sun will give off about two and a half times as much ultra-violet light as it did in 1923, when the spots were least numerous. This is the conclusion of Dr. Edison Pettit, of the Mt. Wilson Observatory, who is conducting a study of this invisible but important part of sunshine.

Dr. Pettit's method depends on the fact that the ultra-violet radiation passes through a thin layer of silver, but not of gold, while a similar layer of gold transmits visible green light. As glass is opaque to the ultra-violet, two lenses of quartz are used, one of which is silvered, and the other gilded. These lenses can form an image of the sun on a vacuum thermocouple, which gives an electric current when light falls on it. This current is measured with a galvanometer, and from it can be determined the intensity of the ultra-violet or the green radiation, depending on whether the silvered or gilded lens is used. As the intensity of the green light remains relatively constant, it is used as a standard with which to compare the ultra-violet.

Science News-Letter, October 9, 1926

FINE ARTS—PHYSICS

Color Symphony Concerts

A screen on which are projected fleeting colors may become an essential part of a symphony orchestra concert in the future, if a device devised by Alexander Laszlo, a musical composer of Munich, comes into general use.

Previous attempts to correlate color with sound and to produce a visual form of music have been made by the French composer Scriabine and others, but, it was stated, it is scientifically impossible to follow any relation between the wave-lengths of light, which determine color, and of sound, which determine pitch. However, it can be done by correlating the light effects with the individuality of the composer.

The Laszlo apparatus makes use of six separate projectors, which operate in conjunction with a piano.

Science News-Letter, October 9, 1926