

the California Institute of Technology, has thus obtained what he calls "stripped atoms" of some elements, in which the outer ring of planets has been removed, but this does not radically alter the elements.

To break into the nucleus, the central "sun" of the atomic solar system, would require, in the opinion of many scientists, vast amounts of energy. Since mercury is next to gold in the procession of the elements, the removal of a single charge, corresponding to the complete nucleus of hydrogen, which is the simplest of the elements, would convert mercury to gold. But the nuclei of other elements have been bombarded with an energy corresponding to five million volts, with no sign of disintegration.

Now it seems, however, that comparatively small amounts of energy are able to get in where larger amounts have failed, and the work at Amsterdam is taken as confirming the atomic theories. The method of the Dutch scientists, however, was slightly different from that used by Miethe and Nagaoka, for instead of mercury they used lead, its close relative. The lead was melted and the tube filled with its vapor. Though the lead was free from mercury, as demonstrated by the fact that spectral photographs of the light from the tube showed only the lead spectrum, after a current of 60 to 100 amperes had been passed through it in the form of successive sparks for a time, the lead spectrum gradually began to disappear. Instead of the lines indicating this element, those of mercury gradually appeared on the plate, together with those of thallium, a rather rare metal which lies between lead and mercury in the list of the elements.

Though the lead spectrum almost completely disappeared, "this does not prove the transmutation to be strong," Prof. Smits reports, "as it is known that a small quantity of mercury can cause the spectrum of another element to disappear. But at all events our spectra show in a very convincing way the transmutation of lead into mercury."

The presence of this synthetic mercury was confirmed by a chemical test, for when iodine vapor was passed through the tube containing the product of twelve hours of sparking, the familiar red color of mercury iodide appeared.

PLEDGE SUPPORT TO RESEARCH TO FORESTALL NEEDLESS SUFFERING

Prominent public men and leading scientists have pledged themselves to see to it that the United States shall give proper support and encouragement to pure science research, it was announced recently by the trustees of the National Research Endowment.

"It is wiser to make large expenditures for scientific research, thus advancing civilization, improving human welfare, conserving health, and saving countless lives, than to tolerate unnecessary suffering and then endeavor to alleviate it at still greater cost," said the announcement.

Research in all branches of the mathematical, physical and biological sciences should be encouraged not alone for its material value but because of the intellectual and spiritual value of adding to knowledge, it is contended.

What may appear to be useless abstract discoveries often result in the greatest advances in science and in industry, and for this reason, among others, the trustees announced their intention of securing adequate funds for the encouragement of research in pure science.

Contrary to the opinion generally held, the United States, although leading in industrial research, lags in research in pure science and supports such research on a level far below what its population, education, and material resources demand. There is, this body contends, an overcrowding of educational institutions that has reduced the limited opportunities for pure science research.

The endowment funds to be raised by the trustees will be administered by the National Academy of Sciences, the leading scientific organization. that is by Congressional charter the scientific adviser of the government. Among the trustees of the National Research Endowment are: Secretary Hoover, Dr. A. A. Michelson, Gano Dunn, Elihu Root, Col. Edward M. House, Cameron Forbes, Henry S. Pritchett, Dr. Robert A. Millikan, Dr. John C. Merriam, Owen D. Young, Dr. Simon Flexner, Dr. John J. Carty, Dr. William H. Welch, Prof. A. B. Lamb, Prof. Oswald Leblen, Dr. Thomas H. Morgan, Dr. George E. Hale, Dr. Vernon Kellogg, Andrew W. Mellon, Charles E. Hughes, Henry M. Robinson, John W. Davis, Julius Rosenwald, Dr. James H. Breast-ed, Felix Warburg, Prof. L. R. Jones.

LARGE SUNSPOTS INDICATE GREAT SOLAR ACTIVITY

The large sunspot observed by many astronomers, both amateur and professional, during January, and visible even to the unaided eye through smoked glass, disappeared on January 31, when the sun's rotation carried it around the western edge. There is good reason for supposing that it will be seen again, however, Since the time it was first seen last November, this large spot has crossed the solar disc three times. Large spots usually survive for several months and sometimes as long as a year, Dr. Frederick Slocum, professor of astronomy at Wesleyan University, told a representative of Science Service.

Prof. Slocum has been studying the sun and its activities at the Van Vleck Observatory of Wesleyan University since 1914, when he became director, and before that he made a specialty of solar studies at the Yerkes Observatory of the University of Chicago.

As the sun rotates on its axis once in about 25 to 38 days, a spot is carried across the disc from east to west, but the rotation is not uniform for all parts of the sun. Spots on the solar equator cross the disc most rapidly, indicating that for that part of the sun the rotation period is about 25 days, while near the poles of the sun the rotation is much slower.

"The large spot recently visible on the sun crossed the central meridian when it was nearest the center of the disc, as seen from the earth, on December 1, December 28, and January 24," said Prof. Slocum. "It was on the eastern edge of the sun on January 17, and having crossed the disc, it passed around the west edge on January 31. This spot is in latitude 22 degrees north on the sun, and the group is 150,000 miles long; the umbra, or dark center, of the main spot being 20,000 miles in diameter, easily visible to the naked eye with smoked glass. Large spots usually last two or three months and occasionally over a year, but smaller spots may last only a few days.