



EARTH AND ITS ELEMENTS

Enter the central portion of the Hall of Science at the Century of Progress exposition and a great globe will be slowly spinning before your eyes, while below there are samples and information on the 93 building blocks of the earth, arranged in the form of the chemist's periodic table. These 93 chemical elements, the basic materials of the world and the universe, have been given a central position in the Century of Progress. Those who learned in school that there are 92 elements are informed that neutron is the one added to the periodic table in the last year. Some of the samples in the display are rare specimens of chemical elements that were totally unknown a few years ago.

GENERAL SCIENCE

Science Theme Carried Out Through 1933 World's Fair

SCIENCE that has remade the world in the last hundred years is glorified at Chicago's Century of Progress exposition.

First of all, the very ground upon which the miles of buildings rest was created out of the shallow waters of Lake Michigan by an engineering operation.

Then for the past three years engineers have been at work designing and rearing the buildings which are to serve for the next six months and then be demolished, much like the settings of a movie city. Yet while it lasts, the Century of Progress city will entertain millions of visitors and exhibit millions of dollars' worth of displays and treasures. It will serve millions of meals. Adequate fire protection must be provided and hundreds of police, guides and other personnel will inhabit the exhibition city during the exhibition hours.

Some of the buildings strike new notes in modern architecture. The bright hues of many-colored paints are spread over the pylons, towers and walls, and

unusual lighting effects blaze their contribution to the fair's decorative scheme.

From the hemispherical planetarium at the northern corner to the gigantic transportation hall near the southern end of the exposition's expanse, there awaits the visitor a liberal education in science and its effects on human life.

The Hall of Science, to which the cross-bannered court of honor of the principal entrance leads directly, contains an array of mechanized, self-operating demonstrations and exhibits in chemistry, biology, physics, medicine and the earth sciences. In some cases the visitor or attendant pushes a button and the machine goes through its cycle of demonstrating a basic science principle. In other cases the exhibit methodically carries out its demonstration every few minutes without the prodding of button pushing.

Some of the machines talk their message by means of sound film or phonograph attachments, while others use more prosaic labels in ordinary or transparent lettering. Lantern slides automatically projected are parts of many demonstrations.

Giant electric machines, automatic telephones and switchboards and the thousands of devices developed by science and used in communication or the electrical arts, are displayed in the great halls of communication and electricity.

In the gold-domed federal building and the hall of states with its emblematic facades, Uncle Sam and the state governments show their public service and governmental activities, particularly along scientific lines.

The Adler planetarium, as yet America's only mechanical show of the stars, is a part of the exhibition. In this richly somber dome the astronomical exhibits are contained.

America's agricultural interests are represented by a low, long building decorated in black, red and blue-green.

On Northerly Island, across the lagoon from the Hall of Science, is also the Hall of the Social Sciences, in which exhibits will recall the social consequences of the century of progress and suggest how the problems can be met.

Southward along (Turn to Page 344)

PHYSICS

Deuton, Heavy Hydrogen Effective in Atom Smashing

WHEN heavy-weight hydrogen hits atoms things happen.

Introducing "deuton" as a new name for the double-weight hydrogen atom only known to science for a little over a year, Prof. Ernest O. Lawrence of the University of California reported to physicists of California Institute of Technology what happens when the heavy isotope of hydrogen is used as a projectile in smashing various elements.

Only about a month ago, Dr. Gilbert N. Lewis, the famous University of California chemist, supplied Prof. Lawrence and his associates, Drs. Henderson and M. Stanley Livingston, with some deutos.

The atom smashing was done with the aid of potential up to 1,500,000 volts imparted to the deutos with Prof.

Lawrence's "merry-go-round" magnetic method of creating high voltages.

Lithium, beryllium, boron, nitrogen, fluorine, aluminum, and sodium gave good results. Transmutations occurred, alpha rays were formed, and probably other processes yet to be examined followed.

The most energetic alpha rays ever seen were produced from lithium. They travel almost fifteen centimeters through air. At this rate of progress one dares not guess what will be achieved in nuclear physics within a few years.

A most momentous experiment is being attempted by Professors G. O. Gibson and Fowler who plan to bombard deutos with deutos in the hope of making them combine into helium.

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