

PHYSICS

Atom-Smashing Artillery To Be Increased in Power

Physicists at Berkeley Meeting Reveal Plans For Apparatus With Five to Ten Times Potential Now Used

ELECTRICAL forces of from twenty to thirty million volts, approaching Nature's lightning and five to ten fold greater than the highest potentials now being used in atom smashing, will be available in the immediate future for science's attack on what is perhaps its most important problem—the baffling mystery of the constitution of matter.

Encouraged by the great progress now being made from week to week in the scientific laboratories all over the world, plans are being pushed at the University of California and Massachusetts Institute of Technology for higher-powered atomic artillery. Preliminary details of the new high-voltage race became known at the sessions of the American Physical Society, meeting

jointly with the American Association for the Advancement of Science.

Immediate and simple changes in the atom-bombarding "merry-go-round" apparatus of Prof. E. O. Lawrence and his University of California colleagues will raise its voltage from its present five million rating to twenty million volts. The present equipment, in which particles are speeded up by oscillating electricity and kept inside the apparatus by the influence of an 85-ton magnet, will shortly be quadrupled in diameter.

From scientists present at the meeting from M. I. T. it was learned that within a year or two a still more powerful brother to the giant ten million volt electrostatic generator of Dr. Robert J. Van de Graaff will be made ready

at Round Hill, Mass., for the world's most energetic attack on atoms. About thirty million volts driving force for atom "bullets" is expected from this new machine of Dr. Van de Graaff, which will be built in a steel tank evacuated of all air to create the necessary insulation.

Despite its great increase in power over present-day apparatus the contemplated device will occupy less space than the ten million volt machine now in use, which is so large that an airship hangar is its home.

The steel tank for the new device will be only about ten feet in diameter and twenty-five feet high. A small experimental edition of the vacuum-surrounded generator is now under construction in Cambridge, Mass. A novel feature of the apparatus will be a chain belt made of stainless steel, nickel and porcelain for carrying electric charges up to the large spheres.

Desirous of increasing their supply of neutrons, which is already the world's greatest, California experimenters have a scheme to increase neutron emission for atomic investigation some 1,000-fold. Hydrogen will be packed into the whirligig chamber of Prof. Lawrence. The sides of the chamber will be lined with the metal beryllium, which when bombarded will yield immense quantities of the desired neutrons.

Since neutrons have just been shown in Italian experiments to be extremely effective agents in producing artificial radioactivity in ordinary stable elements it is hoped that the new technique will make possible new and practically useful reactions of new elements and artificial radioactivity.

The recent discovery of the super-heavy element No. 93 by Prof. Enrico Fermi encourages the hope that the improved American pieces of atomic artillery will add still more elements to those now known.

Science News Letter, June 30, 1934



NOW!

AN ELECTRIC OAR
TO DO YOUR ROWING

Ideal for fishermen and pleasure seekers . . . Trolling speed adjustable from one to two miles . . . Fast rowing speed from four to five miles per hour . . . Absolutely silent . . . Operates from any auto battery . . . Will take you home against a 25 mile wind storm . . . The operating cost is almost zero.

Grimes Electric Oar
(Patented)
214-L Shotwell Park
Syracuse, N. Y.

FREE
Illustrated Folder Sent
On Request

SUBSCRIPTION ORDER COUPON

Science News Letter,
21st and Constitution Avenue,
Washington, D. C.

Please start renew my subscription to SCIENCE NEWS LETTER as checked below:

2 years, \$7 1 year, \$5

and send me a bill.

Name.....

Street Address.....

City and State.....

19123

SEISMOLOGY

Seismographs Record Earthquake in Alaska

AN EARTHQUAKE shook interior Alaska, north of Cook Inlet, on Monday, June 18, at 4:13.8 a. m., Eastern Standard Time, according to data received telegraphically by Science Service and interpreted by scientists of the U. S. Coast and Geodetic Survey. The epicenter was in 62 degrees north latitude, 150 degrees west longitude.

Science News Letter, June 30, 1934