

large opening with small charcoal, and put the ore upon this; put fire in the small hole and blow the fire with the nozzle of a hand bellows; place the piece of charcoal in a small crucible, smeared with lute, in which, when the melting is finished, you will find a button of tin.

Silicon

ANNALS OF PHILOSOPHY, new series, January to June 1824, Vol. VII. and twenty-third from the commencement. London: 1824. (Proceedings of Philosophical Societies: Royal Society.)

A Letter from Professor Berzelius to the President was read in which he describes the results of various chemical researches in which he has recently been engaged; and several memoirs on which accompanied the letter . . .

The fifth memoir relates to the combinations of fluoric acid. A portion of this memoir now printing describes a method by which the author has succeeded in obtaining the base of silica in an insulated state. It consists in acting by potassium on dry silicated fluuate of potash, by which means a mixture of various substances is obtained, which yields hydroguret of silicon by being well washed with water: and when that substance is heated in a crucible the hydrogen is burned off, and the silicon obtained pure. Prof. B. then proceeds to give the results of various experiments upon this substance; among which are the following. It is obtained in various states of aggregation, and its combustibility varies accordingly, it much resembling carbon in this respect: as usually obtained it is combustible when ignited in atmospheric air and in oxygen gas; but in its densest state it may become incandescent in the air without burning. It is very difficult to effect its complete combustion: 200 parts of silicon unite to 208 of oxygen to become silica. It will not burn when heated with nitre, but is brought into combustion by carbonate of potash; a curious circumstance which the author attributes to certain relations of affinities. Silicon burns when ignited in chlorine, forming with it a transparent colourless fluid, having the smell of cyanogen. It is combustible in vapour of sulphur, producing a gray sulphuret, but cannot in this case be completely burned.

Prof. B. next describes the results of the same mode of decomposition as applied to ittria, glucina, and zirconia; giving the chemical habitudes of zirconi-

um, which can be obtained in larger quantities than the bases of the former earths. He then states that he has used the term *fluuate* instead of *fluoride* throughout this letter, not because he thinks the President's ingenious theory of the subject less probable than his own (though he has not been able, by his

own experiments, to determine which is the true one); but because, as he was writing in a language foreign to him, he wished to employ the plainest terms: and concludes by requesting Sir Humphry to lay the above results before the Royal Society.

Science News Letter, July 9, 1932

ECONOMIC GEOGRAPHY

Russia Seeks Warm-Water Port As Pacific Gateway for Siberia

Japan's Manchurian Venture Threatens Vladivostok, Now Ice-Free Most of Year, Thanks to Ice-Breakers

Following is the fourth and last of a series of articles on the tangled and vexed situation in the Far East as seen by leading geographers.

A LONG struggle over warm-water ports looms ahead in the Far East.

This is the outlook as seen by one of those cautious prophets of science, a political geographer. The geographer is Dr. Isaiah Bowman, director of the American Geographical Society, with headquarters in New York City.

One of Russia's vital requirements in the Far East, he explains, is a port open to her trading ships all the year round. Such a port is known as a warm-water port, to distinguish it from ports that are ice-bound in winter.

Throughout Czarist history, Russian leaders worked to gain warm-water ports for the vast Russian domain, not only in the Far East, but in every other direction. So far as the Far East was concerned, the Czarist regime never completely solved the problem. It was left to the Soviets, and is now one of the key points in Far Eastern strategy.

Russia seemed near a solution of the port problem in the Far East when she gained a twenty-five year lease on Port Arthur and Dairen in South Manchuria, back in the eighteen-nineties. The most southerly seaport in Russia's own Pacific territory, Vladivostok, was at that time ice-bound for the greater part of the year. So it was necessary to look farther south, into another country—Manchuria—for the desired outlet.

But the favorable position which Russia gained in South Manchuria was lost long before the twenty-five year lease was out. The Russo-Japanese War broke, and the outcome was that Russia had to

withdraw from South Manchuria, giving up her seaports.

Since then, Russia has concentrated on Vladivostok. She has wrought a complete change in its character, turning the port, to all intents and purposes, into a real warm-water port. This is done by ice-breaking ships that keep the harbor open. As the effectiveness of these ice-breakers has been increased, Vladivostok has come close to being an all-year port. According to advices at the Soviet Union Information Bureau, in Washington, the port is now closed only a few weeks in the year, and the prospect is that Vladivostok will eventually be kept entirely free of ice.

Still, the port problem is far from solution. The Chinese-Eastern Railway,



The Science Service radio address next week will be on the subject,

PRODUCE AND PROFITS

by
Dr. H. G. Knight

Chief of the Bureau of Chemistry and Soils of the United States Department of Agriculture

FRIDAY, JULY 15

at 2:45 P. M., Eastern Standard Time

Over Stations of
The Columbia Broadcasting System

which Russia built across North Manchuria as a short cut to Vladivostok, is in the zone of Chinese-Japanese skirmishes. The upheaval in Manchuria, where China, Japan, and Russia all hold stakes in the important railroads, has given Japan new strength. Two new ports are being developed in northern Korea. Russia, holding aloof from the argument, is faced with the unpleasant prospect of finding her commerce on the Pacific more restricted than it has been, as regulations over railroads and sea-ports tighten against her. Such a situation is not likely to be permanent.

"Vladivostok," says Dr. Bowman, "is a key point in Russian policy, today no less than yesterday and tomorrow. 'Imprisoned Siberia' would be even more shut in than at present if the eastern part of that vast nation were deprived of a port. How to develop that port and its hinterland and yet persuade Japan that Russia is aiming no spear at her, is one of the most acute of the problems that vexes Russia in the Far East today."

Science News Letter, July 9, 1932

ARCHAEOLOGY

Turquoise-Jade Plaque Found in Warrior's Tomb

MEXICAN archaeologists who are exploring the Mayan tomb they have discovered under the Castillo pyramid, in Chichen Itza, have spied a rare object, a mosaic plaque of turquoise and jade. The plaque is lying in a stone box under other fragile articles not yet removed.

Eduardo Martinez Canton, inspector of archaeology in Yucatan, wired immediate news of the discovery to the Mexican department of archaeology in Mexico City. The bits of blue and green stone that make the pattern of the mosaic are on a decomposed wood base. When the Carnegie Institution discovered such a plaque in Chichen Itza four years ago, a museum preparator was brought from New York to undertake the restoration. A Mexican Museum technician will reconstruct the new plaque.

The tomb under the tall pyramid known as the Castle contains a few crumbling human bones. Turquoise spearheads suggest that the personage buried under the temple was a warrior. The position of the bones indicate that the warrior was not the original occupant of the tomb, but was placed there later.

Science News Letter, July 9, 1932

THESE 7 GREAT SCIENTISTS

want to talk to you in your home

DR. ROBERT A. MILLIKAN, Nobel prize winner in physics, leader in scientific thought and head of the California Institute of Technology, speaks on "The Rise of Physics".

DR. JOHN C. MERRIAM, authority on the fossil animals and reptiles of western America, president of the Carnegie Institution of Washington, speaks on "The Record of the Rocks".

DR. EDWIN G. CONKLIN, Princeton University biologist, one of the world's greatest authorities on life processes, speaks on "The Mystery of Life".

DR. KARL T. COMPTON, eminent physicist, president of the Massachusetts Institute of Technology, speaks on "Science and Engineering."

DR. LEO H. BAEKELAND, industrial chemist and one of America's industrial pioneers, inventor of bakelite, velox, etc., speaks on "Chemistry and Civilization".

DR. WILLIAM H. WELCH, of Johns Hopkins University, "Dean of American Medicine" speaks on "The Tubercle Bacillus".

DR. WILLIAM M. MANN, director of the National Zoological Park of the Smithsonian Institution, leading authority on animal life, speaks on "Our Animal Friends".

SCIENCE is absorbingly interesting. Scientists bring forth new points of view, new discoveries, new relationships of old discoveries, and thus they themselves are absorbingly interesting as human beings.

Men and women of intellectual curiosity would like to entertain many of these scientists, one by one, in their homes, but this is usually impracticable.

1 So Science Service, Inc., asked seven great scientists to make phonograph records on subjects which fired them with enthusiasm.

2 We asked Durium Products, Inc., to make a price on a set of seven such records which would be low enough to be attractive to purchasers. They did.

3 We got portraits of the scientists. We had these portraits reproduced in photogravure process, each on a sheet of beautiful white gravure paper, size 8 1/2" x 9".

4 On the reverse side of each picture we printed a brief biography of the scientist, together with his complete speech as recorded on the record.

5 Then we packed pictures and records in a compact mailing carton and found that they could be sold for \$3, postpaid. Seven recordings of seven great scientists with seven photogravure pictures, \$3. We invite your order — send \$3 to Science Service, Inc., Washington, D. C. and ask for a set of "GREAT SCIENTIST" RECORDS.

SCIENCE SERVICE, INC. 21st and Constitution Avenue Washington, D. C.

By mail, postage prepaid, please send me the "GREAT SCIENTIST" SERIES of seven records and portraits, for which I enclose \$3.

Name Street Address City State.....

17006