New York Telephones Australia

America talked with Australia through regular telephone instruments for the first time last week, when officials of the American Telephone and Telegraph Company exchanged greetings with the Australian telephone officials in Sydney. The occasion was an informal demonstration of the practicability of connecting the transatlantic telephone channel operated by the American Telephone and Telegraph Company and British Post Office with the new short wave radio telephone channel operated by the British General Post Office between Great Britain and the Australian continent, that may soon be open for commercial use. The directive short-wave transatlantic radio channel that is now in regular use for European service was used in the demonstration instead of the long-wave channel so that the voices of the speakers were carried a total distance of 15,000 miles by the short-wave system of transmission interconnecting the wire systems of the United States and Australia.

From the office of President Walter S. Gifford of the American Telephone and Telegraph Company calls passed over wire lines to the company's short-wave transmitting center at Lawrenceville, N. J.; thence by radio to the short-wave receiving station of the British General Post Office at Baldock near London, England; and thence by wire via London to the British Government's transmitting station at Rugby, England, and again by radio to the receiving station of Amalgamated Wireless of Australia, near Sydney. The return path was again to Baldock; thence via Rugby to the Bell System's short wave receiving station at Netcong, N. J.

An interesting aspect of the conversations was that, taking place at 4 o'clock, September 25, New York time, the clocks in Sydney read 6 A. M., September 26.

Science News-Letter, October 5, 1929

Twin Carbon

Carbon is the latest chemical element to be shown to have a twin. Last winter two California physicists showed that oxygen, long supposed to be single, was not only double, but triple. Now Dr. Arthur S. King of the Mt. Wilson Observatory, and Dr. Raymond T. Birge of the University of California, have found a kind of carbon that is heavier than the ordinary form. Carbon is one of the most essential elements in living matter.

These experimenters heated carbon in a vacuum in an electric furnace to a temperature around 5,000 degrees Fahrenheit. When the light that it emitted was analyzed with a spectroscope, the usual bright bands of the spectrum appeared, including a very prominent green one. Close to this, however, the photographs showed another, very faint, and previously unknown.

Ordinary carbon is of mass 12, in the scale used for measuring the mass of the atoms. Dr. King and Dr. Birge announce that the new band can be explained by the presence along with ordinary carbon of another kind, or isotope, of mass 13. They are unable to estimate the relative proportions of the two kinds, but the heavier isotope must be present in very small quantities, for the band is hundreds of times fainter than the strong one.

Isotopes, or forms of the same element having different weight atoms, were first discovered in connection with studies of radium and similar elements. A few years ago Dr. F. W. Aston, an English scientist, proved that a number of common elements consisted of as many as six or more isotopes. Last year Dr. W. F. Giauque and H. L. Johnstone, of the University of California, showed the existence of three oxygen isotopes, weighing 17 and 18, as well as the ordinary kind, weighing 16.

Science News-Letter, October 5, 1929

Rustproof Steel Welds

Rustproof steel is easily welded by the acetylene-oxygen process and is even more rustproof after welding than before due to loss of carbon, silicon and manganese during melting. These findings by W. Hoffmann, German metallurgist, have just been announced by the National Advisory Committee for Aeronautics. The physical characteristics of rustproof-steel welds are better than those of soft-steel welds, but the hardness of the metal due to welding must be removed by heat treatment. The rustproof steels most used contain large percentages of chromium or chromium and nickel.

Science News-Letter, October 5, 1929

Shining Fly Paper

Luminous fly paper that lures light-loving flies to a sticky doom may soon be in use, Lyman Chalkley, Jr., director of research of Pedlar and Ryan, New York, told the Illuminating Engineering Society. Phosphorescent pigments mixed with the sticky coating produces a light when the fly paper is in the dark.

"Photoluminescence is finding an increasing number of industrial applications," Mr. Chalkley explained. "Phosphorescent materials, that emit light for some time after the exciting light has ceased, are used on life-buoys, signboards and house numbers."

Fluorescent materials which glow only while under the influence of an activating light are also finding use. When illuminated by ultraviolet light, itself invisible to the eyes, they produce visible light used effectively on the stage and in window displays. By combining phosphorescent and fluorescent pigments in costumes or signs, striking effects can be obtained.

Science News-Letter, October 5, 1929

The American carrot crop has jumped from three to six million bushels within five years.

Chickens may be immunized against chicken pox by applying the virus of the disease to the leg.
