

ARCHÆOLOGY

Rare Mongolian Trophies

Important discoveries won by the Russian explorer, Prof. Peter K. Kozloff, in three years of hard journeying through deserts and mountains of Mongolia have been completely overshadowed by the misleading report that he found the tomb of the famous Mongol chief, Ghenghis Khan.

In a communication to Soviet representatives in Washington, Prof. Kozloff says that his last expedition into Mongolia brought to Leningrad 3,000 specimens of desert plants, bones of rare animals, Buddhist statues from buried cities, and other objects which are being studied by the Russian Academy of Sciences.

Traveling through the mountain regions of Khangay, the explorers found an ancient tomb where 30 generations of an Asiatic tribe were carefully buried.

In the ruins of a Chinese military city in a mountain gorge they found a remarkable stone tablet saying that here 600 years ago was a fortress founded by Kublai Khan in remembrance of an insurrection he had put down.

In the hills of the north Gobi Desert they discovered a graveyard of ancient animal bones lying in thick nests, as Dr. Kozloff calls them. Bones believed by the explorers to be those of the hornless rhinoceros, the giraffe, boar, and other species of great interest to zoologists were taken back to Leningrad.

Returning to the dead city of Khara Khoto, which he visited in the depth

(Just turn the page)

RADIO

Transparent Metal for Radio

Sheets of metal such as iron, gold or platinum so thin that ordinary type can be read with ease through them, may find use in radio and phonograph reproducers. Ordinary diaphragms for this purpose are so heavy that they dampen some of the overtones and so coarsen the sounds. These thin metal sheets are the result of research by Dr. Carl Müller, of the Charlottenburg Laboratory, near Berlin. His method of preparing them is to electroplate the metal on the surface of some soluble substance, such as rocksalt, and then dissolve away the support. A ring of thicker metal can be used to support the films, of which two and a half million would have to be piled to make a stack an inch high.

Such films have been made of

(Just turn the page)

ENTOMOLOGY



FRANK EUGENE LUTZ

Physiological Entomologist

The conventional picture of an entomologist used to be one of an elderly but spry individual actively pursuing a fleeing butterfly or bee with a long-handled net. Dr. Frank E. Lutz, curator of insects at the American Museum of Natural History, can certainly not be called elderly, for he is not yet fifty. But popular notions are in error on that point anyway; most entomologists are inoculated with their particular virus while they are boys, and the disease is chronic and incurable. Its outstanding symptoms are the aforementioned spryness of limb, together with a quick sharpening of vision and a burrowing curiosity of mind. Dr. Lutz's is a typical and well-developed case.

But entomologists do not always give chase to their prey. Sometimes they make the insect come to them at night, taking advantage of the proverbial inability of the moth to keep away from the candle-flame. Dr. Lutz goes the scientific candle-burning trick one better. He lures his victims with invisible light. In the private laboratory which his friend Alfred L. Loomis has built at Tuxedo, N. Y., there is a window with a lamp behind it. At night the lamp frequently burns, though human passers-by would not see it, for its light is the invisible radiation we know as ultra-violet rays. But insect fliers-by do see it, and they come and cluster about the window as though it were agleam with light, and the

(Just turn the page)

SEISMOLOGY

Records Minor Quakes

A new seismograph that records the less violent tremblings of the earth's crust undetectable by the human sense is now installed and in operation at Stanford University. As a part of the fundamental plan for an intensive study of the California earthquake situation, this station has been established by the business men of San Francisco and Oakland as one of four, which are so located as to record the local shocks in the vicinity of that metropolitan center. The central station is at the University of California and the auxiliaries at Lick Observatory, Stanford University, and the California Academy of Science in Golden Gate Park. The instruments and arrangement are patterned on the plan of observation inaugurated by the Carnegie Institution of Washington for southern California to keep track of the minute earthquakes that are constantly occurring and which indicate the development of strain that leads to the greater ones. Four little shocks were recorded recently at Stanford on the new instruments. There is no occasion for alarm, however, since this is merely the normal activity of the earth's crust, not only in California

(Just turn the page)

HYGIENE

Alcohol Chief Bootleg Poison

The principal poison in post-prohibition liquor is alcohol, in the estimation of Dr. H. V. Atkinson of the department of pharmacology at the State University of Iowa.

"An examination of the evidence, which from the nature of the problem is far from exact," he declared in a recent report to the American Pharmaceutical Association, "seems to prove that most cases of poisoning as a result of drinking bootleg liquor are due to the ingestion of an overdose of ethyl alcohol."

Dr. Atkinson divides liquor, as it is known today, into three classes: Properly made whisky and brandy, synthetic liquors, and moonshine or home-brew liquors.

The first class is in all respects the same as carefully made liquors in pre-prohibition days and has never been seriously suspected of containing anything toxic besides the alcohol that makes people want to drink it, stated the chemist.

"Acute poisoning as the result of drinking bouts," he added, "has long been known and is not surprising since the concentration of alcohol in the blood depends on the concentration of the alcohol in the liquor used

(Just turn the page)

Records Minor Quakes

(Continued from page 85)

but also in any region where earthquakes have occurred. Vibrations of the solid earth are as unknown as were those of the atmosphere before radio showed them up. Protection against earthquakes will not be achieved unless we secure a better understanding of their development during the long periods that elapse between severe shocks.

The seismograph installed at Stanford was placed on a ledge of rock that was selected because of its apparent solidity, but the first records showed an extraordinary number of microscopic vibrations, not exactly like those of earthquakes. They were most continuous on windy days and are attributed to a large oak tree which stands about fifty feet away from the instrument piers. The roots evidently extend into the crevices of the rocks, where they find water during the long dry season, and the swaying of the tree shakes the massive ledge of sandstone. The oak will probably have to be cut, to the regret of those who because of its beauty sought to include it in the Seismograph Park which the Trustees of Stanford have set aside in perpetuity.

Science News-Letter, February 11, 1928

Alcohol Chief Bootleg Poison

(Continued from page 85)

and the rapidity of ingestion. The margin between the concentration of alcohol in the blood required to produce intoxication and that causing collapse is not great."

Poisoning from synthetic liquors may be due to any one of a large number of substances used to denature alcohol. Wood alcohol is the guilty agent in most cases but poisoning has been reported from such compounds as nitrobenzene. These are rare, however, the chemist declared, or have escaped detection.

The third class contains those that are fermented and distilled surreptitiously. The great drawback to this type of liquor is the inclusion for reasons of financial profit of "heads" and "tails," the first and last runnings respectively of the distilling. Moonshiners in the old days learned from sad experience that the heads and tails should be thrown away. The former contain certain chemical compounds deleterious to the human system while the latter contain fusel oils, too widely discussed to need explanation. Continued use of badly made moonshine has been shown to produce bad effects on the kidneys of animals.

Science News-Letter, February 11, 1928

Physiological Entomologist

(Continued from page 85)

patient watcher within traps such of them as he desires.

This is only one of the many lines of inquiry into the ways of insects which Dr. Lutz carries on. His main interest, indeed, is in the living insect, not in the skewered specimen in the museum tray. The physiology of insects, and the workings of those strange and complex sets of reflexes that constitute their minds, are his chief joy. Some day he will write a thick book on the subject, and it will be fascinating reading.

Like almost all good New Yorkers, Dr. Lutz was born somewhere else: at Bloomsburg, Pa. Like all sensible New Yorkers, he doesn't live in New York now, but keeps his family at Ramsey, N. J. Like many New Yorkers who are in scientific work, he is giving the metropolis the benefits of an education acquired elsewhere: an A. B. from Haverford and an A. M. and a Ph. D. from the University of Chicago.

Aside from his more critical researches in the insect world, Dr. Lutz has done for the swarming crowds of city dwellers who escape to recreation grounds and state parks on week-ends something which may well stand as a higher monument to his memory than all his scientific work. This is the establishment of "nature trails" in the Palisades State Park—marked paths along which every tree and bush and toadstool and anthill and bird's nest has a concisely written label giving the main facts about it, so that he who walks may read. This idea has been adopted all over the country; the biggest recruits to the movement are the U. S. National Parks. Millions of folk who have never heard of Dr. Lutz and never will, are beneficiaries of this one simple but far-reaching idea of his.

Science News-Letter, February 11, 1928

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An automobile that can be run sideways has been invented to make parking easier.

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A simple piece of apparatus which tests the alignment of automobile wheels has been invented.

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A new steel which is hard on the surface and soft inside is said to be cheaper than alloys in use.

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One of New York's newest skyscrapers burns enough coal in a day to heat four average sized homes all winter.

Rare Mongolian Trophies

(Continued from page 85)

of the desert in 1909, the famous Russian explorer brought away ceramic ware of different periods, from heavy vessels for carrying water to delicate, beautifully wrought porcelain. Here, one of the members of the expedition unearthed a series of long buried human figures, finely made and with cleverly expressive faces. Prof. Kozloff himself says that his finds at Khara Khoto are a significant supplement to those he brought out of the dead city in his earlier excavations. All the walls and structures of the city are now described in detail, he states, and plans have been drawn of the ruins.

Insects and birds entirely unknown were brought back by the expedition, as well as plants from the waterless region of the Gobi Desert. These plants so resistant to drought will be of especial interest to Turkestan and other arid regions, Prof. Kozloff believes.

The rumor that he discovered the lost tomb of the Mongol chief Ghenghis Khan is regretted by Prof. Kozloff. The real fact is that as he crossed the mountains near Khara Khoto he came upon a mausoleum of some Mongolian Khan whose name could not be learned. The tomb was of great age and looked important, but after the long hot summer's work in Khara Khoto, the expedition was returning with light equipment and could not stay to excavate.

Prof. Kozloff has been planning a new expedition to this remote and still little known region of the world.

Science News-Letter, February 11, 1928

Transparent Metal For Radio

(Continued from page 85)

iron, nickel, gold, silver and platinum, and it is found that although the nickel is much less transparent to visible light than gold, it readily transmits the shorter ultraviolet rays. The films are very elastic, and will bulge out for as much as a tenth of their diameter without breaking. Another curious thing about them is their electrical conductivity. Electric current is carried only along the surface of a wire, and as these are practically all surface, a strip of film containing no more metal than a round wire one hundredth of a millimeter in diameter—scarcely visible to the naked eye—will carry enough current to light several lamps. If the same current were passed through the wire, it would be instantly melted.

Science News-Letter, February 11, 1928