ENGINEERING

Deeper Oil Well Drilling

➤ NEW developments in drilling 20,000-foot wells in the search for oil were discussed at the Lake Success, N. Y., meeting of the United Nations Scientific Conference on the Conservation and Utilization of Resources (UNSCCUR), being held this month, by I. S. Salnikov of the Standard Oil Company.

A 1,500-foot well was regarded as deep a half century or so ago, and drilling to that depth was a relatively easy job. America's first oil well, bored at Titusville, Pa., soon after the discovery of oil in 1859, was 69.5 feet in depth. Only 20 years ago, a 9,000-foot well was considered an epic achievement. The first 15,000-foot well was drilled in 1938. Since World War II, four wells in succession have set new records below that depth, and a well in Wyoming, not yet completed, is now below the 20,000-foot mark.

The first oil-well-drilling equipment was the cable tool rig which, in one form or another, has been used to punch holes in the ground since the beginning of recorded history, he stated. The standard cable tool method was used in the United States almost exclusively until 1900. A year later the rotary drilling method came into general use in this country. But although steady improvements were made, pre-war equipment is not satisfactory to obtain the great depths of these post-war deep wells.

The most important developments in rotary drilling, Mr. Salnikov told the scientists, are in the unitization and portability of drilling rigs and equipment; better quality steel for drilling equipment; improved designs; improvement in drilling muds; better understanding of hydraulics in mud systems; and proper application of weight on the bit and rotating speeds. Unitization and portability have made drilling more economical but have not added much to the depth problem.

War-developed steels of great strength are now in use in well drilling. Lightweight, high-speed diesel units now provide power. Hydraulic drives, in the form of hydraulic couplings and torque converters; radially operated air clutches for use in frequently engaged and disengaged rig drives; air controls of engine throttles, and other services have also been developed by the oil industry in recent years.

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AERONAUTICS

Design Slow-Speed Plane

➤ SLOWNESS, not speed, is the feature of a new airplane produced by a professor of Massachusetts Institute of Technology and a professor of Harvard which has already demonstrated its ability to land and take off from an area no larger than a tennis court, it was revealed.

A new name has been coined for the craft. It is the Helioplane, because its take-off and landing characteristics approach that of the helicopter. However, it is a high-wing monoplane and in appearance is similar to that of other two-passenger private craft. The model now in use, which made its first flight three months ago, was built by the Helio Corporation of Norwood, Mass., with funds and under the supervision of the two college instructors.

The plane was designed by Otto C. Koppen, a pilot now a professor of aeronautical engineering at M. I. T., to specifications laid out by Dr. Lynn Bollinger, of Harvard, a former pilot and airport operator. Its first flight was made with Prof. Koppen at the controls. The inventors plan to license the design for commercial manufacture after a small number have been built and they are certain that the plane has been perfected.

The new plane can fly at a minimum speed of 27 miles an hour, the inventors claim. It can do this with no risk of stalling or spinning, they say. Yet its high-speed and load-carrying characteristics are comparable with those of an efficient modern plane of the same size. It is designed to clear a five-story structure only 100 yards from its starting point.

The Helioplane is fully equipped with starter, generator, radio, and the cross-wind landing gear, sponsored by the U.S. Civil Aeronautics Administration, that makes landing on a fixed runway possible regardless of the direction of the wind. It has an unusually large two-bladed Aeromatic constant-speed high-lift propeller, and is equipped with an 85-horsepower Continental engine.

Another feature of the new plane, an important asset if tiny airstrips in the heart of a built-up area are to be used, is its quietness. It makes but little more noise than an automobile. Profiting by experimental work of the National Advisory Committee for Aeronautics, the Helioplane uses different mechanical methods for restricting propeller noise, and the engine racket is eliminated by a "hush-box" which Prof. Koppen developed and patented several years ago.

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ZOOLOGY

Oysters Not so Dumb; Choosy About Food

➤ OYSTERS aren't as dumb as the proverb would have us believe. They know what they like.

Contrary to a widely-advocated view that oysters will swallow any microscopic particle if it is in the size range of their accustomed food plants, Dr. Victor L. Loosanoff of the U. S. Fish and Wildlife Service laboratory in Milford, Conn., has found that the tasty mollusks are a bit choosy about what they will eat.

He tried suspensions of yeast cells on some batches of experimental oysters. There is nothing unwholesome about yeast, but the oysters weren't used to it, so they wadded up the cells and spewed them out again.

Oysters exercised this selectivity on mixed lots of foodplant cells containing also quantities of purple bacteria which they didn't like. Here again they wadded up the purple cells and rejected them, but swallowed and digested the plant cells that make good oyster rations.

Dr. Loosanoff tells of his observations in the journal, SCIENCE (July 29).

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