GEOLOGY

Prehistoric Hunting

Fifty or more fossil skeletons of giant buffalo have been found in a quarry on the High Plains of northwestern Texas.

➤ THERE was good hunting in Texas even in prehistoric times. Fifty or more fossil skeletons of giant buffalo, much bigger beasts even than modern bison, have been found in a quarry on the High Plains of the northwestern part of the state, Prof. E. H. Sellards of the University of Texas told the Geological Society of America at its meeting. Among the bones were 27 arrow-heads and knives, showing that primitive hunters had made a highly successful kill and cut up their quarry for feasting, or perhaps to dry in the sun and store for future use.

The find, which occupies a sandy layer some 500 square feet in extent and from a few inches to one and one-half feet in thickness, is in a situation that indicates that the hunters managed to drive the herd over a bluff into a river bed, probably killing more by falling and suffocation than by direct attack with weapons. Remains of a wolf, the only other large animal found in the excavation, suggests the presence of uninvited guests at the slaughter.

Hills Now Deeply Buried

➤ THE HISTORY of six hills that became islands and are now deeply buried beneath massive layers of limestone was told by Robert F. Walters, oil geologist of Tulsa, Okla. Half a billion years ago, Mr. Walters stated, an ancient land surface was eroded in what is now central Kansas. Six spots, where the formation consisted of quartzite, proved resistant to the erosion and remained standing above the ancient landscape as flat-topped hills.

Then the whole region slowly sank beneath the sea, leaving the hills above waterline as islands. The lagoons and channels among them silted up, and at the same time the bottom continued to sink, until finally even the islands were submerged and buried.

Ages later, the land re-emerged from the sea. Erosion again set in. The softer, later-deposited sediments were washed away, leaving the one-time islands again as hills.

Once again the sea invaded the western lands. This time submergence became deeper and deeper, and layer upon layer of limy bottom silt gradually hardened into stone. Even today, long after a second re-emergence, there are still 3,300 feet of limestone above the tops of the six ancient hills.

This interesting feature of the deeply-buried topography of ancient Kansas was discovered, and its details worked out, during the course of explorations for oil pools.

Medal to Geophysicist

➤ A FEATURE of the proceedings was the presentation of the Penrose Medal of the Geological Society of America to Prof. F. A. Vening Meinesz of the University of Utrecht, who is now in this country as Delegate for Science of the Netherlands Government. Dr. Meinesz is the inventor of a multiple pendulum which can be swung in a ship and used to measure the value of gravity beneath the sea bottom. Using this in submarines, he discovered a number of extraordinary regions of gravitational irregularities or anomalies. Dr. Meinesz is the sixteenth recipient of the Penrose Medal.

Science News Letter, January 5, 1946

AERONAUTICS

Flying Boat of Plywood To Be World's Largest

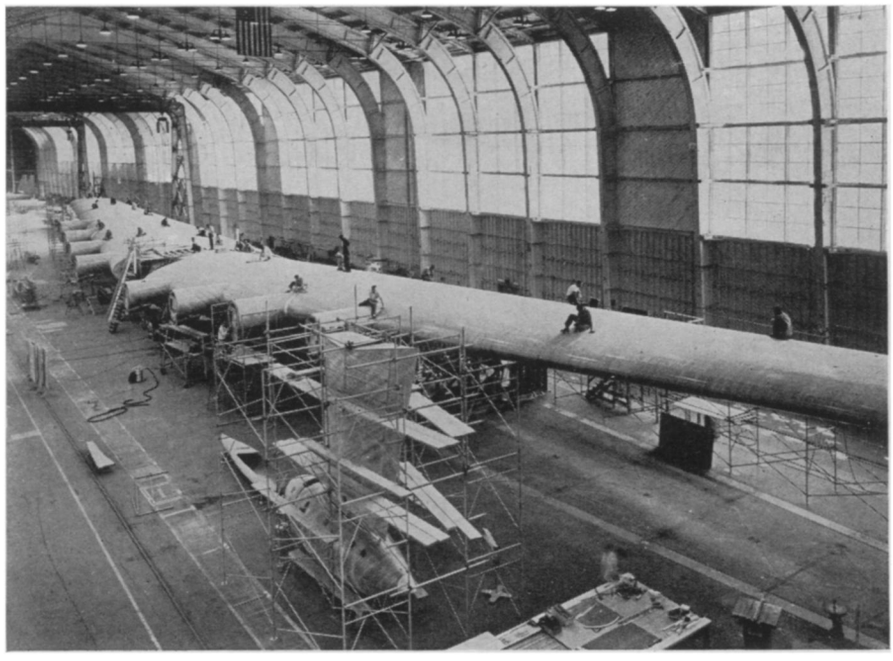
See Front Cover

➤ AN EIGHT-MOTORED flying boat three times as heavy as the previous world's largest, the "Mars," is nearing completion in Culver City, Calif. A novel view of the interior is shown on the front cover of this SCIENCE NEWS LETTER.

The new boat, designated by the manufacturer as the H-4, weighs over 200 tons, and is 200 feet long, with wing spread of 320 feet. It is powered by eight 3,000-hp motors, each with 4-bladed propellers 17 feet across. Forty-two tons of gasoline may be carried in its 14 tanks, and the hold is large enough to carry a B-17.

As a hospital ship it could accommodate 350 patients on stretchers, plus doctors, nurses and equipment. Its cruising speed is 175 miles per hour, with a landing speed of 78 miles per hour. Take-off distance of over a mile is required.

Aside from its spectacular size, the most unusual feature of the Hughes H-4



WING SPAN 320 FEET—Some idea of the size of the flying boat may be gained from this view of the wing panels of the H-4. Note the workmen as they appear in comparison with the parts on which they are working.

is its virtually all-wood construction. The only metal parts are forward of the fin walls in the eight engine nacelles. Solid wood could not be used. Trees do not grow large enough, and natural wood has too many inherent defects. Therefore plywood is used throughout for the frame of the hull, wings, tail surfaces, ribs, and for the covering of all major assemblies. Fabrication of these giant components is achieved by laminating and cross-plying selected wood veneers, using synthetic resin adhesives. The adhesive must be stronger and more durable than the wood itself, and must be completely water resistant. The curved sections are produced by the now familiar bag molding process. This involves the use of a mold, over which layers of adhesive-coated veneers are laid cross-grained. The assembly is enclosed in a rubber bag, from which air is exhausted by vacuum, and then placed in an autoclave where steam furnishes both heat and pressure to fuse the veneers into a single solid structure.

The thickness of the veneers varies from 1/48 to 1/2 inch, and the synthetic resin adhesive must possess characteristics which will permit it to cure properly under the various required temperatures. Each of the millions of glued joints in wood construction must possess the necessary strength and show no deterioration.

Science News Letter, January 5, 1946

CHEMISTRY

Synthetic Fibers Research

➤ A SERIOUS WARTIME shortage of natural fibers in Germany, for clothing, canvas and rope, forced concentrated research, it is now revealed, directed toward the production of synthetic fibers with wool-like properties, and replacements for jute, sisal and hemp to make baling materials, rope and twine.

Germany obtained considerable wool from conquered countries, but the amount was insufficient for military uniforms. Its supply of cotton and rope-making fibers was very limited. Even before the war the plan of the Reich government was to make Germany independent, as far as possible, of the importation of raw materials for fibers, and also of natural fibers.

In the case of cotton, this was accomplished to a marked degree by the expansion of the rayon staple and tire yarn industries, but it was recognized that rayon staple fibers would not be entirely satisfactory for outside wearing apparel and for many technical and industrial uses.

German activities in the development of synthetic fibers have been studied on the ground since the close of the war by J. B. Quig of E. I. du Pont de Nemours and Company under a program of investigating German industrial and chemical methods sponsored by the United States government. His report is now released by the Office of the Publication Board, U. S. Department of Commerce.

The shortage of iron, steel and other metals, the report says, greatly stimulated the rapid development of hydrocarbon polymers and copolymers for the plastics industry. Some of these polymers were capable of being made into fibers, and determined efforts were made to find polymeric fibers which would augment the natural fiber economy.

In the development of wool-like fibers, three lines of approach were followed. These were the modification, physically or chemically, of viscose and acetate rayon fibers; the preparation of a synthetic protein fiber; and the application of water repellents to the fiber or fabric.

By the first line of approach, a crimped cellulose fiber of viscose, cuprammonium or acetate solutions was obtained that duplicates fairly successfully the superficial characteristics and processing characteristics of wool, but obtained only a limited success in imparting water repellency, permanence of crimp, and resiliency of handle.

Many other synthetic fibers are reviewed by the investigator. His conclusion, relative to the status of wholly synthetic fibers in Germany, however, is that progress in the United States compares favorably with it.

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ENGINEERING

Cable Controls Operation On Bulldozer Tractors

➤ BULLDOZER operators, whether levelling Army airfields or building civilian roads, will welcome a new single-drum front-mounted cable control to raise or lower the heavy earth-cutting blade which is pushed forward by a caterpillar tractor. The new cable control, simple and easy to operate, is mounted where readily accessible on the front of the tractor.

This cable control is of compact design, permitting close mounting to the tractor. Cast-steel structural members and cast-steel case provide structural strength. Anti-friction bearings used throughout contribute to the ease of handling. The control embodies the smooth-performing multiple-disk type clutch that has proved satisfactory in the past.

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