

AVIATION

Airplane of 1940 Envisioned By British Air Expert

BY 1940 aircraft engines will develop at least 1,600 horsepower in a single engine unit, it was predicted by the British aeronautical engineer, H. Wood, of Rolls-Royce, Ltd., before the meeting of the Society of Automotive Engineers in White Sulphur Springs.

By special invitation of the Society, Mr. Wood came from England to present recent advances in the art of cooling airplane engines with liquids—either water or the newer glycerine compounds.

Wherever modern airplanes are flown, cooling is a major problem, for in many cases airplane engines already overheat if operated on the ground for any length of time. Only at the high velocities of cruising flight is sufficient air drawn over the engine to give proper cooling. Liquid cooling used in the best English airplanes is in sharp contrast to the common American practice of using air-cooled engines.

The engine of high horsepower in the future, Mr. Wood intimated, will probably consist of many small cylinders to take advantage of the relatively increased cooling surface thus attained.

British aircraft engines—at least the major part controlled by Rolls-Royce—will continue to be liquid cooled in the future, Mr. Wood maintained. His invitation to speak, he declared, had been accepted in the spirit of a friendly challenge.

It has only been since the adoption by air-cooled engine manufacturers of the special engine cowling devised by the U. S. government's National Advisory Committee for Aeronautics that British airplane engine producers had had to worry greatly about the development of liquid-cooled engines.

Previously the small front area of "in-line" liquid-cooled engines gave a smaller air drag than the much larger radial air-cooled engines. With the cowling, however, air drag has become essentially comparable for the two contrasting engine types. Thus the liquid cooling advocates have had to revise their concepts.

Progress in English liquid-cooled engines, Mr. Wood admitted, has not been as spectacular as the American developments in air-cooled aircraft engines. The

rapid development of civil aviation in America has been instrumental in this fast development.

By contrast, the British authority pointed out, civil aviation in England is comparatively small and most engines have been built for the British Air Ministry for military purposes. The Air Ministry has maintained a balance between air-cooled and liquid-cooled engines resulting in the keeping of technical advantage to both.

Science News Letter, June 6, 1936

ARCHAEOLOGY

Learn China's History From Ancient Oracles

THE early history of China's mysterious Shang Dynasty, 1500 B.C., is being revealed by an ancient Chinese oracle.

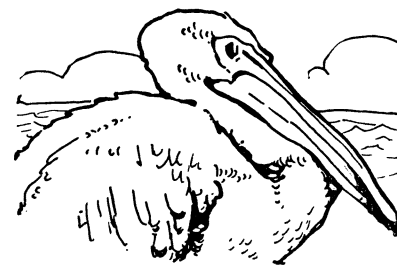
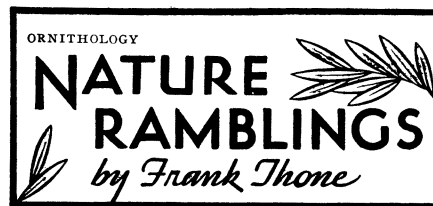
Importance of new discoveries connected with this oracle, in the Honan Province of northwestern China, was emphasized by Dr. A. R. Radcliffe-Brown of the University of Chicago, speaking before the central section of the American Anthropological Association meeting in Evanston, Ill.

Heretofore vaguely known by historical writings recorded long after the events happened, the Shang Dynasty is now speaking for itself, through contemporary writings. These writings, described by Dr. Radcliffe-Brown, are questions that early Chinese emperors inscribed on tortoise shell or bone, and brought to official diviners. By applying heat to the shell or bone, the diviner interpreted the cracks that formed from the heat, and answered the questions accordingly.

The questions of the Emperors and others are very revealing, as to the state of affairs in that ancient time in China. The oracle was questioned regarding wars, planting of crops, and other important matters, and since there was no reason to exaggerate or distort the truth, scholars are at last checking up on the extravagances and doubtful features ascribed to that period.

The inscriptions are serving as new sources of information for the study of ancient forms of the Chinese language, Dr. Radcliffe-Brown also reported.

Science News Letter, June 6, 1936



Fishers With Dip-Nets

MISTAKEN notions still prevail about the function of the pelican's beak. Even now, probably, a majority of people accept the dictum of the ancient profane limerick, that "he can store in that beak enough food for a week."

Actually, the pelican stores nothing in his capacious pouch. What he catches he swallows. At the home nest, the young pelicans are regaled with fish regurgitated from the parental stomach. Messy, no doubt; but the pelicanlets don't seem to mind.

What, then, is the pelican's pouch used for? Simply as a dip-net, a necessary fishing implement, ornithologists tell us. Pelican Pete, sailing his majestic way over the waters, sees a fish. Swoop! goes his head, with the big-pouched beak distended. And the fish is caught exactly as with a dip-net.

White pelicans, which live exclusively in the West, are surface fishers. They swim along, seeking their prey as they go. Sometimes a whole row of them will go fishing at once, driving a school of fish before them with a great beating of wings and dipping up every one that comes close enough to the surface.

Brown pelicans, which are the common Eastern and Southern species, fish on the wing. When one sees a fish within grabbing distance of the surface, he makes a nose-dive for it, beak open, and scoops it in. The pouch of the brown pelican, which thus depends more on marksmanship than on a wide sweep of the net, is much smaller than that of the white pelican.

Colonies of pelicans that winter in Lower California waters sometimes have their nesting places where you would least expect them. One group nests on a couple of tiny islands in Yellowstone Lake, about 7,500 feet above sea level.

But fishing is very good in the lake, which is crowded with trout.

Another colony of pelicans nests on an island in Great Salt Lake, where there are no fish at all, because of the extreme saltiness of the water. To do their fishing, these birds must fly to the streams and smaller freshwater lakes of the region, and then wing the long way home to feed their young.

Science News Letter, June 6, 1936

CHEMISTRY

Sponge Made by Man Rivals Nature's Product

A MAN-MADE sponge that may prove to be superior in many ways to the natural product is a new achievement to be added to those of the chemist. The sponge is manufactured of highly purified wood and cotton cellulose, resembles a cake of Swiss cheese, its spongelike appearance being due to chemical reactions, and can be employed for all purposes to which sponges are ordinarily put.

The new synthetic sponge is tough and durable but becomes quite soft and pliable when wet, thus precluding any possibility of scratching the most highly polished surface. It will outlive the natural product, states a report (*Industrial and Engineering Chemistry*). This man-made sponge is resistant to cleaning compounds, soaps, greasy matter, and grit; is uniform in quality, size, shape, and texture; is free from odor and, since it floats, does not pick up grit and other foreign matter. It can be trimmed to any desired size without damage to its texture or durability, and can be used for washing, polishing, and drying almost any surface without the aid of towels or chamois. The duPont Cellophane Company of New York is the first to manufacture the sponge in the United States.

Science News Letter, June 6, 1936

THE IDENTITY THEORY By Blamey Stevens

It has been said that the Identity Theory will be to Physics what Evolutionary Theory has been to Biology, namely, a fundament to which most branches of the subject are referable.

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PHYSIOLOGY

Noise Blamed for Many Evils At Meeting of Deafened

AN ALL-ROUND indictment of noise, as harmful to health, happiness, and the pursuit of a living, was made by Dr. W. R. Barss at the conference of the American Society for the Hard of Hearing in Boston.

Dr. Barss, physicist and technical member of Boston's noise commission, cited experiments to support his denunciations.

"Statistical analysis in New York City," he said, "reveals the fact that a large percentage of automobile and taxi drivers are partially deaf, and that this percentage is increasing, and the same is known to be the case among laborers or mechanics exposed to constant noise."

Possibility that noise is playing a definite part in the mounting toll of deaths due to diseases of the circulation, particularly heart disease, was suggested by the speaker.

In experiments, a popping firecracker raised systolic blood pressure. A telephone bell was found to speed up the heart rate. Effects of noise on pressure within the skull have been tested by bursting a blown-up paper bag, and this sharp sound raised the brain pressure to four times the normal for seven seconds.

Increased pressure within the skull, he explained, means an increased circulation, and that in turn calls for an increased amount of work on the part of the heart.

Using mice, instead of men, in laboratory experiments, it has been learned that white mice exposed to noise eat five per cent less than those eating in quiet, and growth is retarded ten per cent, as compared with the mice protected from noise. These experiments, Dr. Barss declared, probably have a bearing on what goes on in human beings under similar conditions.

Continuing his indictment of noise, as bad for mind and body, Dr. Barss said that it causes fatigue, thereby shortening years of efficiency; increases accidents; possibly aggravates crime psychology; and interferes with the joy of living.

As early as 720 B.C., the city of Sybaris in Italy had regulations prohibiting industrial noise in residential areas, Dr. Barss found by digging into history, but it has remained for the pres-

ent era to become noise-conscious, and to try to find out what noise actually does.

Conditions Improving

Conditions for the deafened have greatly improved in the past 15 years, Miss Josephine Timberlake, superintendent of the Volta Bureau at Washington, reported. Use of lip reading as an aid in conversation is increasing. Such devices as the audiometer and "field fones" have passed the stage where they seemed "thrilling experiences" to the hard of hearing. Stronger efforts are being made to prevent loss of hearing, to conserve what is left, and to prevent voice control from deteriorating in individuals who cannot well hear their own speech.

Science News Letter, June 6, 1936

ARCHAEOLOGY

Nature, Not Man, Made Mummies in Island Cave

NATURE, not man, preserved New Guinea's mysterious group of human "mummies," found sitting knees-to-chin in a long cave in the Morabe goldfields district.

With this verdict, two British scientists have apparently upset the earlier pronouncement on discovery of the mummies, that New Guinea natives once knew how to mummify bodies as the Egyptians did, and perhaps learned the art from distant Egypt itself.

The mummies appear to be dried-up, not embalmed, declares E. L. Gordon-Thomas, reporting to the scientific journal, *Man*. Conditions in the limestone cave, high above the sea, served to dehydrate the bodies, is the supporting view of Dr. E. T. Brennan, principal medical officer of New Zealand.

Finding the light-skinned corpses—over 60 of them—may shed considerable light on problems of New Guinea anthropology, Mr. Gordon-Thomas believes. The ancient chapters of New Guinea's habitation by man have been little probed. Present day natives cannot explain the burial customs that mummies of the cave tomb represent, nor can the natives show how people would handle and use the huge stone pestles and mortars which have been found in this area.

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