

discoveries are cruciform rooms, of which the floors are covered with red paint; and among the artefacts are a number of bead-collars. Of even greater importance for the archaeologist is a pair of solid gold boots, nearly two inches high, of exquisite workmanship. With two doubtful exceptions, objects of worked gold have not been found hitherto in that period of the Maya civilisation to which the ruins of Copan are assigned. Unless further and more intensive study should point to a foreign origin, these boots of gold must be accepted as evidence that the Maya added no little skill in this technique to their artistic accomplishment, and that a neglect of gold-working, which has always seemed somewhat surprising, has been attributed to them in error. Further details of the stone statues and monoliths will be awaited by archaeologists with the greatest interest, as owing to the conditions of discovery, they should throw further light on the development of the Maya art of stone carving, for which the site of Copan is already remarkable among Maya remains.

COPAN, situated in the modern State of Honduras, lies in what was the southern area of Maya occupation, and was the fourth city to be founded after they had entered the country. It belongs to the 'Old Empire' or early Maya period and was occupied in at least the period from 195 A.D. until 540 A.D. This minimum period is derived from Mayan dates carved on stelæ found on the site, which are correlated with the Christian era according to a generally accepted interpretation. Copan is one of the most extensive and important of Maya sites. Its ruins consist of a vast complex of buildings which were reconstructed time and again in the course of occupation. Structural remains cover nearly the whole of the Copan valley. Recently, however, the site has suffered much from the effects of earthquake, and the river has begun to encroach on important parts of the ruins. In the circumstances, the Mexican Government has asked for the assistance of the Carnegie Institution's Expedition, which has had its headquarters at Chichen Itzá in Yucatan for some years and has had much experience in the restoration and preservation of Maya structures. Of this co-operation the present discovery is an outcome. Dr. Stronsvik reports, according to a communication issued by Science Service, Washington, that a part of the bank has collapsed into the river, and a beautifully carved chamber excavated fifty years ago by the late A. P. Maudslay, the well-known British archaeologist, has fallen in. The landslide has left a vertical section of the ruins about a hundred feet in height on the eastern side. Dr. Stronsvik is of the opinion that the Maudslay chamber can be reconstructed, but the material carried away by the river is irrecoverably lost. As a minor mitigation, however, the landslide has revealed an instructive cross-section of the city's development.

#### Pygmy Man in India

A REMARKABLE report has come from Bombay of the discovery of the fossilised remains of a pygmy man in Baroda State. According to the account

from the correspondent of *The Times* in the issue of February 21, the discovery was made at Vadnagar in the Mehsana district of Baroda. The remains were said to have been found in a prehistoric step-well, 150 ft. long, and were those of a man 15 inches high. With them was a cow 18 inches high; nearby was a stick 10 inches high. The correspondent of *The Times* went on to point out that the discovery might call for a new orientation of theories concerning the cradle of the human race and the origin of civilisation which would no longer be traced to Java, or the valley of the Nile or the Indus, but rather to the valley of the Narmada. He also referred to Homer's story of the battle of the dwarfs and cranes and the report of Ctesias in the fifth century B.C. of the existence of a dwarf race in the heart of India. Even if the report were taken seriously—it has been stated to be a hoax—the discovery of a single specimen of so remarkably an aberrant character would be scant foundation "to prove the existence of an extinct race of pygmies more diminutive than that in Africa". Most ethnologists postulate a negro strain in the Indian peoples which may have been derived from a diminutive race, not of some unknown extinct form, but analogous to one of the pygmy peoples, which extend, with intermissions, from West Africa to New Guinea; but these peoples are a highly specialised rather than a primitive type and their stature does not, as a rule, fall much below four feet six inches. Ethnological theory, for the moment, remains unshaken.

#### High-Altitude and Long-Distance Flights

THE Air Ministry has recently authorised the construction of two new experimental aeroplanes, one for high-altitude and the other for long-distance flights. The high-altitude machine will presumably be used for exploring the question of flight in the stratosphere, which is usually taken to mean that region in space above a height of 28,000 feet. There are plenty of aircraft in existence capable of reaching heights greater than this; the present record is 47,356 ft. held by the Italian pilot Donati, but no attempt has yet been made to deal with the possibilities of economical flight at such heights. The ultimate possibilities in this respect are much greater speeds owing to the reduced resistance of the rarified air. It will be necessary to carry superchargers to supply the required oxygen for the combustion of the engine fuel, appliances for breathing and heating, air-tight cabins or special suits for the occupants, and propellers the pitch of which can be changed to suit the different air conditions. These extras will have weight, which will reduce the fuel-carrying capacity of the machine, and it is not impossible that this requirement alone will limit the practical utility of stratosphere flying.

THE time taken to climb to such heights will be considerable, which will possibly make the proposition not worth while except for long flights, where again lack of fuel capacity will place a limit on it. Such flights are not likely to have any immediate application to air transport, but their importance in the experimental sense is obvious. The long-range



experiments have a more definite application both to civil and service flying, where the question of the proper balance between quantity of fuel carried—to the exclusion of useful load—and the necessity for landing for further supplies, is essentially a practical one, peculiar to the geographical conditions in different parts of the world. These experiments should also further the development of the compression-ignition heavy-oil engine, the smaller specific fuel consumption of which makes it particularly applicable in this case.

#### Future of Lighter-than-Air Craft

THE announcement that the Secretary for the U.S. Navy will oppose any further construction of airships to replace the wrecked *Macon* presages the end of large rigid airship activities in that country. Germany is now the only country, so far as is known, to continue experiments with these craft in increasing sizes, the new larger Zeppelin, to be called the *Hindenburg*, being now near completion. It is significant that Dr. Eckener of the Zeppelin Company has succeeded where others have failed, probably because with faith and perseverance he has acquired that kind of knowledge and experience in design, and assembled a staff skilled in the technique of construction, maintenance and handling, which can only result from practical experience. Germany has now been building large airships continuously since 1910, and even up to 1914 claimed to have flown 80,000 miles and carried more than 37,000 passengers. The present *Graf Zeppelin*, launched in 1928, has crossed the Atlantic 62 times without serious mishap. The only large airship in the United States that is still in an airworthy condition, the *Los Angeles*, is a Zeppelin type built at Friedrichshafen.

It is claimed nowadays that for long-distance commercial flying the airship is threatened by the large flying boat, which unquestionably has superior speed, but has not yet attained a comparable range. The latest projected flying boats only claim to be able to fly the Atlantic non-stop with a favourable wind. As a naval scout, if it can be protected from attack, the airship is still unrivalled. It can patrol trade routes far outside the range of aeroplanes, and its vision must be greater than any surface cruisers. It is also reasonably independent for action of the movements of its own surface vessels, a decided drawback of aeroplanes carried by the fleet.

#### Fundamentalism Undefeated

A CABLE message dated February 20 from New York which has appeared in *The Times* states that on the previous day the House of Representatives of Tennessee defeated a motion to repeal the State law which prohibits the teaching of any theory that man is descended from a lower order of animals. The vote against repeal was 67 to 20, and the opposition to the repeal was led appropriately by the oldest member of the House, who opened his case by reading the first chapter of Genesis. It will be remembered that about ten years ago a young teacher of biology, J. T. Scopes, was convicted and fined at Dayton

under this law. The case aroused great controversy in the United States, and was outstanding because of the eminence and the oratory of the counsel employed on each side. Perhaps it was outstanding also as a picture of the simple faith which holds that truth can be decided by lawyer's arguments, and that scientific fact can be settled by majorities. Fundamentalism is by no means dead in Great Britain, but with the growth of knowledge it is dying.

#### Musk-Rats in Scotland

SINCE the musk-rat campaign was commenced by the Department of Agriculture for Scotland, in October 1927, the official trappers have killed 945 individuals. To this must be added 60 killed by private persons, a total of 1,085, the progeny of five females and four males which escaped from an enclosure in Perthshire in 1927. Even the artificial pond on Gleneagles Golf Course has yielded five since the beginning of November 1934 (*Scottish Naturalist*, 1934, p. 11). As a rule, the traps were laid at the mouth of a burrow, and a remarkable fact is that they did much more damage to other wild creatures than to the musk-rats themselves. Mr. T. Munro, who supervised the work, records the death in traps set for musk-rats of 1,745 brown rats, 2,305 water-voles, 57 weasels, 36 stoats, 2,178 moorhens, 101 ducks, and a miscellaneous collection of birds, including amongst others 23 seagulls, 13 redshanks, 28 snipe, 15 blackbirds and a solitary kingfisher—a list of misadventures which runs to 6,587 items. It is possible that this very considerable slaughter cannot be avoided, but apart from the brown rats the majority of the wild creatures slain are harmless, if not even useful from the human point of view, so that every effort should be made to confine the work of the traps to the pests they are meant to capture.

#### Moving Biological Diagrams

MANY of the living processes of organisms can be illustrated most effectively by cinema films taken through the microscope, and with Mr. Walt Disney's technique, diagrams could be shown in the same way for educational purposes. The American Genetic Association has applied this principle in publishing "Biological Movie Booklets" to illustrate cell division, fertilisation and meiosis, and it proposes to deal later with the more intricate processes of heredity in *Drosophila*, crossing-over and so forth (Biological Movie Booklets. Vol. 1: Normal Cell Division. By Clyde E. Keeler. Pp. 46. Vol. 2: Maturation of Sperm. By Clyde E. Keeler. Pp. 94. Vol. 6: Fertilization. By Clyde E. Keeler. Pp. 65. Washington, D.C.: American Genetic Association, 1929. 3 vols., 1.50 dollars). Successively releasing the leaves of the booklets brings these dead diagrams to life, and for those who have not learnt to make the mental translation of diagrams into movement the effect should be improving. For those who have passed this stage the effect is still amusing, provided that the leaves are turned over quickly. Taken separately, however, the figures seem to be drawn, not from life but from an early or popular textbook. The