

petal colour, all of which received quantitative measurement, together with qualitative studies of the dehiscence of the fruit and the hairiness of the ovary walls. The article is illustrated by two photographs, and by ten diagrams which include nearly a hundred frequency polygons.

W. L. B.

AMPHIBIAN FAUNAS OF SOUTH AFRICA AND MADAGASCAR.

IN discussing the relationships between the amphibian faunas of South Africa and Madagascar in the Annals of the Transvaal Museum for April, Mr. J. Hewitt accepts the theory of an early land connection between Australia, India, Madagascar, the Seychelles, and South Africa, which was sundered between Australia and Africa after the Lower Cretaceous, and was elsewhere broken up into islands in the early Tertiary. The connection between Madagascar and India persisted until the Eocene, or perhaps later, as an archipelago, and Africa may have been connected by swamps with Madagascar until the early Pliocene. Another land-bridge connecting South Africa and South America by way of the Atlantic is likewise accepted. The fauna of the whole area is considered to have had many features in common; but after the separation of Madagascar and the formation of the African continent the latter area was invaded by a Palæarctic fauna, which could not reach Madagascar. The fauna of that island accordingly seems to represent in a modernised form—with a few additions—the one originally common to the southern Ethiopian area.

The author then proceeds to discuss how the relations of the amphibian faunas of Africa, Madagascar, South America, and Australia can be explained on these suppositions. To follow him in detail would take too much space; but it may be mentioned that he is disinclined to accept the generic identity of the Malagasy boa-like snakes with South American types, and that he regards true frogs (*Rana*) as of African, and tree-frogs (*Hylidæ*) as of South American, origin. The two latter are stated to have attained their present distribution by crossing what is now Bering Strait, in opposite directions, after the sundering of the connection between Africa and South America (p. 37), *Rana* having thus reached South America from the north (p. 35). On the other hand, it is stated later (p. 38) that the *Ranidæ* are an Old World group "which crossed over to the Neotropical region at a time when the land-bridge was just beginning to give way, and when eventually they had travelled northwards as far as the Antillean bridge this was no longer complete." The discrepancy in the two statements requires explanation.

WATER SUPPLY IN AUSTRALIA.

THE great drawback to settlement in some parts of Australia is the frequent droughts that have to be dealt with. So far back as 1884 the New South Wales Government appointed a commission to consider the question of irrigation, and, as a result, a water conservation department was organised, and an experienced Indian irrigation engineer appointed to advise. As one result of this the construction of a dam across the Murrumbidgee River was decided on. This dam, known as the Burrinjuck Dam, rivals in size and quantity of water impounded the famous Assouan Barrage across the Nile. The Murrumbidgee River for 200 miles above the dam runs its course principally amongst mountains, the higher peaks of which are covered with snow in winter. The catchment area at this point amounts to 5000 square miles, the rainfall varying from 20 to 70 inches a year. At the place where the dam has been constructed the whole of the river water passes through a narrow granite gorge, and consequently the minimum cost of construction, combined with the maximum stability, has been secured. For about 200 miles below the dam no irrigation works are needed, as the district through which the river flows is undulating and has a sufficient rainfall. Below this the river enters a flat country, with a diminished flow of water. Like some other rivers in Australia, the Murrumbidgee, instead of increasing in volume as it proceeds on its downward course to the

ocean, actually diminishes, and becomes a small stream. This is due to the diversion of its water into shallow lagoons, where the evaporation caused by the fierce sun and percolation disposes of the greater part of the water. The dam is of concrete, 240 feet high and 784 feet long. It will back up the water in the main stream for 41 miles, and of two of its tributaries for 15 and 25 miles. Although the water supply is to be brought into operation at once, the dam has only been built up to 110 feet; the remaining 130 feet, it is expected, will take two years more to complete. For carrying on the works and providing for the staff employed a temporary township has been created provided with complete sanitary arrangements and medical attendance. An electric installation has also been set up for working the cranes and other machinery. A light railway 28 miles long has been constructed connecting the temporary township with the main line of railway from Sydney to Melbourne. The estimated cost of this work is 758,000*l.*

THE DIVINING ROD.

DR. L. WEBER, professor of physics in the University of Kiel, has published in the *Journal für Gasbeleuchtung und Verwandte Beleuchtungsarten sowie für Wasserversorgung* a copy of an address on the divining rod read by him at Flensburg in September last. Dr. Weber regards belief in the powers of water diviners as a form of antiquated superstition and gross error; he is of opinion that there is no evidence that the movements of the rod are due to any cause outside the diviner, who is the subject of self-deception. He bases this view on the results of careful investigation, but, in so far as the paper in question is concerned, only one instance of actual experiment is given (see below).

Dr. Weber mentions the results obtained by Herr von Uslar in the German African colonies, and thinks that the divining rod was, in this case, simply a magic staff which animated von Uslar's expedition to extraordinary exertions, and, more particularly, to deep boring with excellent results.

The experiment mentioned in the *Journal* is one performed at Flensburg before the Association of Gas and Water Specialists of Lower Saxony. Herr Léon, a well-known water diviner from Kiel, submitted himself to the blindfold test tried so frequently; he indicated two places in a room, in one of which his rod acted strongly, and in the other of which there was little or no action. He was then carefully blindfolded, turned round, and taken to the two places in irregular turns, when his rod gave corresponding indications to those obtained at first (when not blindfolded) in only two cases out of the six. The present writer has performed similar experiments, and always with similar results to those which Dr. Weber obtained with Herr Léon; he is, however, of opinion that they cannot be regarded as conclusive, since it is quite possible that, if the movements of the diviner's rod are due to an objective cause, the blindfolding may influence the nervous condition of the water diviner in such a way as to render him a less efficient "water indicator" than he would be in ordinary circumstances. On the other hand, it must be remembered that Herr Léon accepted the conditions of the experiment, and when a scientific man undertakes to investigate an apparently mystic process, such as water finding, he cannot be expected to do more than lay down conditions which appear to him reasonable and are accepted by the diviner.

J. W.

NEW MECHANICAL ENGINEERING LABORATORY OF THE MUNICIPAL TECHNICAL INSTITUTE, BELFAST.

ABOUT eighteen months ago the Corporation of Belfast authorised the preparation of plans and the installation of a teaching equipment suitable for the scientific training of mechanical engineers. The plans for this work were at once put in hand, and the installation has been carried out to the designs and under the direction and superintendence of Prof. J. H. Smith, head of the mechanical engineering department of the institute.