lecturer next proceeded to discuss the river system of Australia. As they were all aware Australia was a low tableland, perhaps nowhere exceeding 1,500 feet in height, flanked on the east, south-east, and south-west by mountain ranges. They recognised these natural divisions in the conformation of the south-eastern portion of the continent. First, they had the narrow strip of coast country, with an abundant rainfall, principally supplied from the Pacific, in the southern portion of New South Wales, where the rainfall was as much as 40 inches in the year, while in Sydney it was 50 inches, and in the extreme northern portions of New South Wales it was as much as 70 inches. This region was abundantly watered by rivers coming down from the mountains. Then they had the mountain ranges, and finally the great western plains. The coast rivers were short and perennial. The main rivers, which flowed in the opposite direction, had two different sources of maintenance, the Murray, for example, being fed by the winter rains and the melting of the snow in the summer season. The other system, of which the Darling was the representative, was fed by tropical rains, these streams being important during the rainy season, but sinking into insignificance at other periods of the year. The Professor said he would defer a description of the remainder of the river system till another occasion.

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CLIMATE AND DISTRIBUTION OF LIFE IN AUSTRALIA.

The second of the course of lectures being delivered by Professor R. Tate, F.G.S., at the Adelaide University, was given on Monday evening, October 27. There was a moderate attendance. Professor Tate, after reviewing the salient features of his first lecture, began by stating that Australia presented various climates according to the amount of rain and the temperature, and accordingly presented very different groups of plants and animals. A good deal of public attention, he said, had lately been given to the influence on cultivation of the rainfall, and as to how far the disadvantages of the climate might be ameliorated, especially in the northern areas. It would of course be idle to seek to operate against the laws which govern the winds and the rainfall. In a certain sense it was true that the rain followed the plough. High cultivation, which we had not reached here, tended to attract and conserve rain in the soil, and that was a safeguard in some degree against drought. But in that sense only could rain be said to follow the plough. It must appear to all that any ordinary means introduced must be powerless in bringing about any change in the operation of natural laws. Speaking of the locality of Lake Eyre in its relation to climate, the professor remarked that it was impossible on account of the elevation of the land to convert Lake Eyre into a large sheet of water by letting in the sea, but if it were possible to do so it would not alter the existing state of things, seeing that the operation of the laws which governed that dry zone would still prevail. A means by which alteration of climate might be brought about would be by elevation of the land if the elevation were sufficient in extent to produce a large mass of land to the north of Australia by which Australia would be connected with New Guinea and the vast archipelago lying to the north and west. The effect of such a formation of land would be to displace the system of winds more to the north. Conversely a depression of the land by which the land area would be reduced would result in narrowing down the rain belts; and if the

depression were sufficiently great to greatly curtail the land area lying between the Gulf of Carpentaria and the southern part of the continent, the effect would be to increase the strength of the monsoon winds, which to some extent would obliterate this dry region. These, said the professor, were speculations. The elevation and depression of land might in past times have been in operation. But an alteration of climate was such as was produced by a change in the eccentricity of the earth's orbit. This alteration in the eccentricity of the earth's surface was now deemed to be the primary cause of the instability of climate, and was more particularly applicable to the northern hemisphere. The testimony of the rocks of Great Britain revealed the fact that that country had at one time possessed characteristics that rendered it capable of luring to its shores tropical plants and animals, while at another period the cold there had been so intense as to almost destroy animal life. Nearly the whole of the northern hemisphere showed that in recent times it lay beneath a mantle of ice. That was a period known as the glacial period of the northern hemisphere, and there were similar indications of a like character showing that the southern hemisphere had passed through the same vicissitudes. We were justified by induction in believing that if the northern hemisphere had experienced those changes so had the southern. There was abundant evidence throughout the dry zone, showing that in comparatively recent times it enjoyed a large rainfall, and he might state in that connection that investigators of the nature of that evidence were led to no other conclusion than that central Australia had had alterations of climate which were in all probability to be ascribed to the variation in the eccentricity in the earth's orbit. A knowledge of that fact would help us very materially in seeking to explain some of the apparent anomalies in the life of Australia. He would summarise the evidence he had referred to by stating that it was shown that large freshwater basins had been contracted to mere saltwater pans—Lake Eyre being a contracted freshwater basin of that kind. Remains of gigantic herbivorous animals had been found scattered all over that basin. The extinction of the larger herbivora was brought about by the change of climate converting the region into a very dry one. Other evidence was found in the recent deposits of crocodilian remains, and in the existence in the river beds of fish and large reptilia, which did not now live in the country at all. Professor Tate then referred to and explained a diagram concerning the rainfall in Adelaide, and showed the great variation that had occurred for years past in the yearly rainfall. The diagram showed that there were groups of years when the rainfall increased to the maximum, and groups of years when it sank to the minimum. Speaking on the subject of attempting to produce rain by artificial means, the lecturer said that much had been said and written on the subject of trees producing rain. We were told that if you deforested a country the rainfall diminished. He accepted the opposite opinion as being more in accordance with general principles. European experience, based on records kept since the year 1688, and extending up to the present day, failed to prove that the rainfall had decreased as the trees had been destroyed. A similar remark might be applied to the United States covering a period of sixty-six years. It had been shown that open plains had quite as much and in some instances more rain than was found in adjacent timber country. It was true that forests had the power of condensation, and it was that fact which had led to the prevalence of that erroneous opinion on the subject. On the other hand trees assisted evaporation, and the loss of moisture through evaporation far outweighed any such doubtful advantage which might result from the condensation of moisture upon the surface of the trees themselves. Forests prevented floods, as they prevented the quick gathering together of waters. The lecturer concluded by making a few general remarks on the river system of Australia, referring particularly to the water system to the east of the mountains situated on the east coast.