

Register July 5th 1882

UNIVERSITY LECTURES.

THE NORTHERN TERRITORY.

On Tuesday evening, July 4, Professor Tate, F.G.S., delivered his second lecture in the University of Adelaide upon "The Northern Territory of South Australia: its Physical Geography and Natural History." There was a large attendance, and the lecturer's clear descriptions were listened to with evident satisfaction, the audience frequently applauding. He pointed out that one very marked feature of the country was the tableland to which he had referred in his previous lecture. At no very great distance from the coast was a precipitous face of rock 300 feet high leading to the high tableland. The land near the Victoria River gradually rose till the tableland reached the height of several hundred feet. That feature was so marked that the climatic phenomena, distribution of minerals, and even the fauna were influenced by it. He showed by sketches the character of the country, with its escarpments near the coast and flat-topped hills more inland. The country occupied by the peculiar tableland was not confined to the Northern Territory, but began in the north-west of Western Australia, and stretched across to the west coast. The most part was composed of an absorbent sandstone rock, and influenced the climate very much. He spoke of one as a tableland of desert sandstone, and the other as the basin of the northern rivers, and by means of a blackboard showed the strata; the underlying stuff was slate and the overlying sandstone. Water sunk until stopped by the upper surface of the slate. Wherever seen the underlying surface of the sandstone was a plain one. The upper surface had an inclination to the north-west, and the water had an outlet, the springs being all around the escarpment at junction of the sandstone and the slabs. That was the reason that the rivers rose there. The constant removal of the material by the wearing away of the slate, leaving the sandstone unsupported, caused the peculiar deposits of small stones and the worn face of the sandstone. The escarpment was evidently working its way back, and the rivers that rose near the desert sandstone were lengthening. The shortness of the rivers was due to the proximity of the sandstone escarpments to the coast. The shortness of the rivers and the torrential character of the rains caused the floods which presented so many difficulties to explorers. The nature of the country was regulated by the relative positions of the slate and sandstone. All the country was geologically new, for the configuration had been determined by subsequent wear—the more ancient country was the desert sandstone. The outline of the Northern Territory was peculiar. There was a uniformity of line and rock structure on the eastern coast of the Territory; but a great deal of the broken outline on the west was due to alteration of hard rock and sandstone. Perhaps the most interesting portion was Van Dieman's Gulf, where there were fine harbours and large rivers, the outline of the coast being referable to rock character. Palmerston was on a small tableland presenting perpendicular cliffs to the coast. The points were made up of hard sandstone and the indentations of micaceous slates. As time went on and the sandstone headland was worn away by the action of the sea, the coastline would become more uniform. It must be evident that the desert sandstone country must not be altogether regarded as capable of producing tropical growth because it was in the tropics. It would be found from all points of view that the country partook of an Australian character, and that its tropical conditions—due to its position—were modified by the desert sandstone. All sandstone tracts were more or less arid, and had some influence upon the moisture. This explanation brought the lecturer up to the subject of climate, and he showed by diagrams upon the blackboard the origin and direction of the winds prevailing in the Territory, explaining how the passage of the moist south breezes over the arid sandstone tracts became bereft of much of their moisture. The dry season in the Northern Territory, he said, was absolutely a dry season, viz., without rain for six or seven months. Towards the end of December the monsoon gathered strength, and the south-east trades declined. The monsoon having travelled over a large aqueous surface was moist, and when it reached Australia deposited some of its moisture. The heavy rains were due to a conflict of the winds, the moist north-west monsoon meeting the dry south-east trades having a tendency to pack the rain-clouds. He had reason to believe that our north winds were really monsoons. They originated in the north-west of India, and reached our shores charged by moisture, which was, however, wrung out of them in the passage over the dry regions, and came to us as a hot wind. According, as the monsoon impinged upon the coast so it influenced a greater or lesser extent of country. The mitigation of the heat in the Territory was due to the nature of the peculiar winds. Further inland from Southport the rainfall gradually diminished—in one case at the rate of one inch in five miles. The

most of the rain fell near the coast. The direction and strength of the wind affected the rainfall, causing irregularity. If reliance could not be placed upon the rain it were better to abandon such enterprises as depended upon the regularity of the rainfall, such as some agricultural pursuits. The rainfall was very irregular; but the wet season was also marked by turns of dry weather. This affected the vegetation, and as a case in point unfavourably influenced such succulent plants as sugar-cane in one instance that came under notice. The climatic phenomena, in relation to health, was an important point, and he could say in justice to the Territory that the climate was not injurious to health. The salubrity of the climate was due to the proximity of the desert sandstone. Outdoor exercise could be indulged in at the Northern Territory to a greater extent than in other tropical climates. The bracing dry air from the desert sandstone exercised a wholesome influence. Nevertheless he was convinced that so far as manual labour was concerned, it was not a climate in which Europeans could work very hard. However, a good deal that had been laid to the country in the matter of fevers was mainly due to the indiscretion of the people complaining. Sleeping out on the dewy nights and indiscretion in the use of drink caused much of the ills referred to. He attributed much of the evils to bad food and bad housing of people in the Northern Territory. Pork was in his opinion not suitable food for the climate. If the people exercised a better choice of diet and had better houses the condition of health would be very much improved. The Chinese there lived in lightly constructed houses, built often in mortar. Some of the Europeans lived under little better conditions in the matter of situations for houses. The natives lived in high and dry localities, but the Europeans were careless of sites. There were some excellent sites for residences, however. This closed the lecture, and Professor Tate promised in his next to give an explanation of the geological features of certain parts of the Territory.

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UNIVERSITY LECTURES.

THE NORTHERN TERRITORY.

Professor Tate, F.G.S., delivered his third lecture on "The Northern Territory of South Australia; its physical geography and natural history," at the University, North-terrace, on Tuesday evening, July 11. Considering the inclement weather, there was a good attendance. The lecturer first referred to the geological structure, mentioning the desert sandstone, which he said could be traced from the north-west to the western flanks of the Cordilleras of Queensland, where they overlie inconformably shales, with interstratified bands of limestone, containing cretaceous fossils, and consequently there would be no question as to their tertiary age. Along the coastline of the north of Australia were bluffs or cliffs about 100 feet in height, which were not coarse sands, but a very fine grain, and which at first sight would be taken for limestone. These bluffs had no extension inland, the greatest breadth of the table-tops being about two miles. He referred to the metamorphic rocks and basalts, after which he touched on the mineralogy, stating that the useful minerals were confined to the metamorphic rocks. Mr. Tate described the country where the minerals were to be found, remarking that the Northern Territory was pre-eminent for producing two of the largest shells in the world. Respecting the coal in the Northern Territory, on his recent visit he had made an investigation of certain deposits of coal, but judging from the age of the rocks where it was obtained they could not hope for much. Copper was found by Gregory in 1855 in the Victoria River, and next by Mr. Goyder's party in 1869 near the River Finniss, to the north of the giant quartz reef, on the west flank of the Litchfield Range. Subsequently discoveries were made near the Howley and Pine Creek. The Ministerial party had inspected the two latter places and found a carbonate of copper, the prospects of which seemed good. He had, however, since made an analysis, and was rather disappointed with the result. It was not of a good quality, containing too much arsenic to be valuable. Tinstone was first found in 1869 between the Celica and Upper Darwin, on the flanks of the granitic mass of the River Finniss. Subsequent discoveries had been made at Mount Wells, the River Fergusson, and Mount Douglas. The ores were yielding a good percentage of stone. He mentioned several other minerals, including lead ore and iron ore, the latter being some of the richest in the world. Referring to the discovery of gold, the Professor stated that the speculations made by the Rev. T. Woods and Mr. Stuart proved correct.