of examples from other parts of the world. Mr. Balfour pleads for assistance in adding to the fine collection of material in his charge in the Pitt-Rivers Museum, Oxford.

The journal also contains an elaborate, well-illustrated paper on the antiquity of man in Ireland as traceable in the older series of flint implements. Needless to say, the character of some of the specimens obtained from the raised beach at Larne and other sites in North Ireland has formed the subject of active controversy, Mr. Knowles asserting that they are human artefacts, while other authorities, as in the case of the eoliths, deny that they are the work of man. In this paper Mr. Knowles urges the validity of his theory with much vigour, and he recognises in some specimens striæ which prove that they belong to the Ice age. He sees in some of them a remnant saved from the precursors of the Chellean and Achulean *coups de poing* of France and the south of England. His arguments deserve serious attention, but it is perhaps too much to say that he will succeed in convincing his opponents.

The institute under its present management has made a decided advance. Its members now number 534—the highest point hitherto attained—as compared with 367 in 1913. During the year it has been engaged in various schemes of research, and has strongly advocated the teaching of anthropology to candidates for the Indian and Colonial Civil Services. But a larger membership is much to be desired, because many important projects, and, in particular, the reorganisation of the library, have been postponed through lack of funds. The present housing of the institute leaves much to be desired, and it is scarcely creditable to the British, Indian, and Colonial Governments and the large number of officials and colonists throughout the Empire that a decided effort has not been made to place this valuable institution on a sounder footing.

PROBLEMS OF THE ANTARCTIC.

ONE of the most noteworthy meetings during the Australian session of the British Association was the discussion at Sydney on the past and present relations of Antarctica in their biological, geographical, and geological aspects. The four sections of zoology, geology, geography, and botany held a joint meeting for this purpose on August 25, with Prof. A. Dendy in the chair. Sir Douglas Mawson, who had only reached Sydney the day previously from London, was to open the discussion, but he devoted his time more specially to a general account of the work of the Australian Antarctic Expedition. He expressed his belief in the existence of only one land mass in Antarctica. Prof. T. W. Edgeworth David touched on several points. The uneven level of the ice-barrier at its seaward edge could be adequately explained only by its containing beneath its surface flattened-out ribs of glacier ice from the glacier valleys to the south-west and south-east of the barrier. These would account for the inequalities in level of the barrier face, which varies from 20 to 150 ft. above sea-level. In this connection Prof. David pointed out how in the heavily faulted rock strip of South Victoria Land cross faulting had produced low points in the horst through which the inland ice had run. He also dwelt on the importance of the study of Antarctic meteorology in relation to the weather of Australia, and emphasised the value of the Macquarie Island meteorological station.

Mr. Griffith Taylor spoke at some length on glacial erosion. He contended that in 78° S., the latitude in which his observations were made, there is little or no glacial erosion, that it is too cold for it to act, and that the present sculpturing of the land is due to the effects of alternate thawing and freezing. As proof of this theory, he pointed out that the streams flowing from glaciers in summer are clear and not muddy, as, for instance, in the Alps.

Mr. H. T. Ferrar, who was not in entire agreement with Mr. Taylor about erosion, spoke of the tectonics of the continent of Antarctica. He maintained that the evidence showed that the continent had been under a torsional strain. The Pacific side had fallen and caused the Andean fold while the rest stood firm. Mr. Ferrar agreed with Prof. David about the structure of the great ice-barrier.

Prof. A. Penck brought the discussion back to the main problem. He pointed out the oneness of South Victoria Land with Eastern Australia and the absence of folding since Palæozoic times. On the other hand, Graham Land shows a complete divergence from this structure, and a marked similarity to South America, in its folded beds of Tertiary age and marine origin. The great problem is, How are these two regions of Antarctica, so strikingly opposed to one another, joined? It was formerly suggested that the Andean folds were continuous into Edward Land, but this theory found no support in the geological evidence collected by the Amundsen Expedition in that land. Prof. Penck held that the possibility of a strait across Antarctica was not yet disproved.

Dr. R. N. Rudmose Brown agreed that the main problem of Antarctic exploration was to discover the connection between the two divergent structures of Victoria Land and Graham Land. This would be a justification for a long transcontinental journey like that contemplated by Sir Ernest Shackleton. Dr. Brown disagreed with Prof. Penck as to the existence of a strait across Antarctica, and said that the discoveries of Shackleton and Amundsen in the Ross Sea area and those of Bruce and Filchner, as well as the increased probability of the actual existence of Morrell Land, left no room for such a strait. He pointed out that the Deutschland Expedition has not disproved Morrell Land, but that it had, on the other hand, lent colour to its existence.

Capt. J. K. Davis emphasised the importance of deep-sea work around Antarctica, and gave some account of his own explorations and discoveries south of Tasmania in the *Aurora*. He pointed out how little of the coast line of Antarctica was known, and insisted that this important part of Antarctic discovery could be more satisfactorily and easily done from sea than by land journeys. Capt. Davis said he wished to place on record his great indebtedness to Dr. W. S. Bruce for the invaluable help he had given him in deep-sea apparatus and advice in its use.

Mr. F. L. Stillwell spoke of the geological work he had done with the Mawson Expedition, and showed specimens of the rocks obtained. He showed that Adelie and Wilkes Land are of the same plateau structure as Victoria Land.

Dr. G. C. Simpson suggested that an area of five million square miles radiating solar energy into space must have an effect on atmospheric circulation which had not so far been given full importance. Dr. Simpson spoke at length on Antarctic meteorology in Melbourne to Section A.

Other speakers included Prof. A. C. Seward and Mr. C. Hedley, and while the discussion cannot be said to have shed much new light on the main problems of Antarctica, it afforded a useful interchange of views and evoked great interest in Sydney. The time proved all too short for the number of speakers available, who were in consequence almost limited to actual explorers.

R. N. RUDMOSE BROWN.