ROYAL SOCIETY, 1876.

MARCH, 1876.

The first evening meeting of the session was held on Tuesday, the 14th March, T. Stephens, Esq., M.A., F.G.S., in the chair.

The Hon. Secretary (Dr. Agnew) brought under notice the following returns, viz. :—

1. Visitors to Museum during February, 1471.
2. Visitors to Gardens during February, 4591.
3. Plants and seeds received at Botanic Gardens during February.
4. Time of leafing, flowering, and fruiting of a few standard plants in Botanic Gardens during February.
5. Books and periodicals received.
6. Presentations to Museum.

Meteorological Returns.—

1. Hobart Town, from F. Abbott, Esq.—Table for February.
2. New Norfolk, from W. E. Shoobridge, Esq.—Ditto.
3. Port Arthur, from J. Coverdale, Esq., M.D.—Ditto for January and February.
4. Mount Nelson, from Marine Board—Ditto, ditto.
5. Sydney, from the Government Observer—Printed Tables for October and November, 1875.

The presentations to the Museum were as follows :—

1. From Dr. G. Bennett, F.L.S., F.Z.S., Sydney—Specimen of Ammonite from Western Australia. 2. Portions of Humerus, and two of lower jaw of Diprotodon from Darling Downs, Queensland.
2. From Dr. Coverdale, Port Arthur—A large hair ball, from the stomach of a calf six weeks old.
3. From Mr. Piguenit—Sample of the paper-like bark of a species of tea-tree.
4. From Mr. Lukin Boyes—A bivalve shell (*Spondylus*), locality unknown.
5. From Mr. J. Baker—Two samples of tin ore from New South Wales.
6. From Mr. J. B. Mather—Popular reprints of ten early English Newspapers, viz., *The English Mercurie*, 23rd July, 1588 ; *The Weekely Newes*, 31st January, 1606 ; *The Gazette*, 5th September, 1658 ; *The Newes*, 6th July, 1665 ; *The London Gazette*, 10th September, 1666 ; *The Times*, 3rd October, 1798, 16th April, 1801, 7th November, 1805, 10th January, 1806, and 22nd June, 1815.

The Rev. W. W. SPICER remarked that the earliest of these, the *English Mercurie*, had been proved to be a forgery ; the others, however, were genuine and of great interest.

7. From Mr. Ludbey, Brighton—Two specimens of Fossil Wood.
8. From Mr. Tasman Morrisby—A White Hawk (*Leucospiza novæ hollandiæ*).
9. From J. C. Barclay, Esq.—Specimens of the Copper Coinage in circulation in Tasmania in 1875, at the period of the cessation of the copper currency (50 pieces). Specimens of the Bronze Coinage in circulation in Tasmania in 1875 at the time of the withdrawal of the copper coinage (28 pieces).

10. From the Hon. J. Maclanachan, Esq.—An Egyptian Goose *(Chenalopex ægyptiaca).*
11. From the Rev. J. Ross—A large prepared specimen of the Monitor Lizard of Australia.
12. From Mr. Blyth, Honeywood — Two Black Snakes. *(Hoplocephalus curtus.)* A peculiar Insect from the bark of a stringy-bark tree.
13. From Mr. S. Baynton—Specimen of Silicified Wood, from Brown's River Beach.
14. From Mr. Brunt — Fossils from Travertine beds, Geilston Bay. Fossiliferous limestone from Bridgewater.
15. From Mr. Jeffrey—Fossiliferous limestone, from near New Norfolk.
16. From Mr. T. Williams—Specimen of the Pacific Heron *(Ardea pacifica),* shot at Lake Tiberias.

The SECRETARY observed that this specimen was of interest, as it afforded the first known indication of the presence of the *Ardea pacifica* in Tasmania. As to its habitat, Gould in his description of the bird only states it is "a summer visitor to the whole of the Southern Coast of Australia."

17. From Mr. J. E. Risby—A large Crab found on beach at Pirate's Bay, Tasman's Peninsula.
18. From Captain Audley Coote — Specimens of the New Zealand Telegraph Cable, shewing shore-end, intermediate, and deep-sea portions, neatly mounted in plate glass case.
19. From Major Dumbleton—Two casts of Fossils from the Mersey.
20. From F. A. Blackman, Esq.—Samples of two qualities of sugar, from the plantation *(Antigua)* of A. H. Brown, Esq., Mary River, Queensland.

In reference to presentation No. 18, the following extract from a letter from Captain Nares of H.M.S. Challenger to the donor was read :—"On the Australian coast the incline from the 100 fathoms line, which was 17 miles from Sydney, into a depth of 2,100 fathoms at 57 miles distance, was about 1 in 20, which is less abrupt than we had previously found to be the case further to the southward of Twofold Bay, where it was about 1 in 6. The bottom, which consists of *soft ooze,* then slopes down to a depth of 2,600 fathoms at a distance of 240 miles from the coast of Australia, the temperature being 33°, which conditions continue for 140 miles. From this extreme depth the bottom slopes with a gentle incline, with soft ooze, for 400 miles, until, at a position 780 miles from Sydney, and 335 miles from the entrance to Cook's Straits, we obtained soundings in 1,100 fathoms. Between this and New Zealand only shallow soundings below 400 fathoms, with hard bottom, were obtained. The bottom on this part was extremely hard, so much so that we obtained little or no samples in the sounding rods, but as both the trawl and dredge dragged freely along, without catching in any irregularities, it must have been of a smooth nature."

In reply to a remark as to the very low temperature at the deep soundings, mentioned by Captain Nares, the SECRETARY observed it certainly at first sight seemed extraordinary that about the latitude of Sydney, the deep water of the Pacific should have a temperature only one degree above the freezing point. This, however, was quite in accordance with Dr. Carpenter's theory of vertical oceanic circulation. Stated briefly this theory was to the effect that the polar cold primarily, and the equatorial heat secondarily establish a vertical circulation by which the icy polar water flows along the bottom towards the equator, whilst the warm and lighter surface water of the tropical seas flows in the opposite direction. This theory therefore pointed to an almost polar cold at the greatest ocean depths irrespective of latitude.

Mr. STEPHENS drew attention to a specimen of fossil wood (presenta-

tion No. 13), received from Mr. Baynton, exhibiting in section a good example of the concentrically ribboned crystal locally known as carnelian, and throwing some light upon its origin. Other evidence, which was mentioned, also tended to connect these crystallised forms with silicified wood so abundant in many parts of Tasmania, but the subject required investigation. Mr. Stephens also exhibited a specimen of fossil wood from the interior of a mass of the Penguin Creek conglomerate breccia, which he had picked up on the road-side while travelling on the North Coast. This was interesting as being the first and only evidence of organic remains in any of the conglomerates of the North Coast, none of which probably were more recent than Lower Cainozoic, and some of which were certainly as old as Lower Silurian.

The following communication—"An attempted solution of the roaring of the Western Mountains," by the Rev. E. P. Adams—was read:—"At certain times there is to be heard in the nighbourhood of the Western Mountains a roaring, loud, awful, and continuous. It is not restricted to any particular time of year. I believe I have heard it all seasons. The area where it is audible lies from Bishopsbourne to Deloraine and Chudleigh, and I daresay further on in either direction—so that I estimate the area for the sound, as below forty miles at a moderate computation. Various opinions are expressed as to the cause of this noise. 1. The agitated waters of the Great Lake, distant about 20 miles. 2. The roaring of the sea thirty or forty miles off. 3. The Meander Falls, about sixteen miles away and about five hundred feet in height. But without trying to demolish these theories, I shall submit that which I believe to be the true cause of the sound. And first I shall describe the noise as last heard on Thursday, the 10th ultimo (January). Thursday night was calm and cold, after a gale of wind all day, which had succeeded a week of very hot weather, ending with thunder and lightning. These would demonstrate a disturbed state of the atmosphere. About 10 p.m. the rumbling in the mountains was very grand and distinct. My companion when I called her attention to it, as we walked in the moonlight, said 'Is it not terrible.' It sounded as if a Lake had burst its banks, and the waters were roaring and raging towards us, *i.e.* Deloraine. Taking into consideration that this sound is always to be heard after a disturbance in the atmosphere, and when the air on the plains is still, and I suppose cooling, the sound appears to me to be accounted for on this principle:—When the air of a hall or passage seeks an entrance through the key-hole in the door of a warm room, the humming noise of the cold air passing through the key-hole is often startling. The air being disturbed, and the mountain air suddenly cooled, it rushes through the mountain gorges to the warmer plains—these gorges form a passage for the cold air like the key-hole of the warm room, and the cataract of cold air keeps up the sound until the air beneath has become cooled to the level of the mountain air."

Mr. P. T. Smith stated he had frequently heard this peculiar roaring sound at Syndal (Ross district), but had never heard of any attempt at explanation.

The Rev. W. W. Spicer asked if any one had ever been on the mountains when the noise was present?

Mr. Stephens thought not. He was, however, quite familiar with the sound, which was heard occasionally both on the eastern and western side of the tiers, and therefore extended over a considerable tract of country. He did not think we had sufficient data at present on which to found any quite satisfactory explanation.

The Secretary remarked it was frequently a most difficult matter to obtain satisfactory data for the explanation of such phenomena. Apropos to the present case he instanced the occurrence at the Delta of the Ganges,

of those peculiar sounds locally known as "The Guns of Burrisaul," the cause of which has not yet been determined. A short account of these sounds, from "All the Year Round," for July, 1875, was then read.

An instance of the extremely high temperature experienced in some silver mines in the Nevada territory having been communicated to the Society by Captain A. Coote as its last meeting, the following explanation by Professor Rogers was read from an American paper. "Among the chemists an interesting account was given by Professor Rogers of the chemical processes going on in the depths of the silver mines, in the Nevada Comstock lode. In the deeper drifts of the mines the heat is almost intolerable, the temperature being frequently as high as 150 degrees. Life is supported only by pouring ice-water on the head. The water that trickles from the rocky roof of these drifts is so hot as to be almost scalding, and the workmen are protected from it by sheet-iron screens. The temperature is far beyond what would be due from the depth of the mine, and is largely owing to the presence and decomposition of sulphides. There is a trace of saline matter, and the contact of the sulphide of silver with chloride of sodium produces, by chemical action, the high temperature. Professor Rogers' explanation of the cause of the great Californian Steam Geysers will be a great blow to all wonder-loving tourists. 'The geysers,' he says, 'exhibit no great geological phenomenon, but result solely from the action of superficial chemistry. The heat is caused by the action of air and water upon iron pyrites, generating oxide of iron and sulphuric acid, which readily form sulphate of iron.' This will be a disappointment to those who imagined fiery furnaces and boiling cauldrons sending up the startling steam jets, and scalding waters."

Some extracts were read by the CHAIRMAN from a paper by Mr. E. T. Newton, F.G.S., on the result of a microscopical examination of "Tasmanite," the so-called "Dysodile" of the Mersey. Mr. Newton says, "The two substances known as 'Tasmanite' and 'Australian White Coal,' which are the subject of the present communication, have a special interest for the geologist on account of the light which they throw upon the microscopic structure and composition of many coals. My attention was first directed to them when collecting materials for Professor Huxley's examination into the microscopic structure of coal. My esteemed colleague, Mr. Etheridge, at that time gave me a specimen of brown laminated substance, labelled 'Lignite, the so-called White Coal, Australia,' and drew my attention to the fact that it was very largely composed of small seed-like bodies, very similar to, although smaller than, the macrospores of *Flemingites*, which are seen in many kinds of British Coal. A specimen of this same kind of White Coal is in the Museum of Practical Geology, and is labelled 'Bituminous Shale (locally called White Coal), New South Wales, Australia.' I have likewise been able to examine the specimen of Tasmanite also in this Museum, which is labelled 'Tasmanite; combustible matter from the River Mersey, on the north side of Tasmania; stratum of unknown thickness, but known to extend for some miles. Presented by Sir William Denison.'" The author's conclusion is, that "There can be no question as to the Tasmanite sacs being vegetable organs, although at present we do not know the plant to which they belong. Their size and form seem to indicate that they are more nearly allied to Lycopodiaceous macrospores than to anything else. The inconvenience of having an object without a distinctive name induces me to propose one for the spores (?) found in Tasmanite and Australian White Coal (the two being, as I believe, identical in structure); and in order to retain existing titles as far as possible I would suggest that Professor Church's name *Tasmanite*, which is so generally used in reference to the schist as a whole, be retained for this substance, and that the spores (or rather the plant to which they belong) should be called *Tasmanites*, with the specific title of *punctatus* in allusion to the surface markings."

None of the Fellows present were acquainted with the substance referred to as "Australian White Coal," but the Rev. W. W. SPICER thought the term was used by Strzelecki.

Mr. STEPHENS remarked that Mr. R. M. Johnston of Launceston had given much time and attention to the examination of these discs, or rather sacs, in the Mersey schist, though his description differed slightly from that of Mr. Newton. He was clearly the first person in Tasmania who had identified them as the spores of a Lycopodium or some allied plant. Tasmanite belongs to the Mersey Coal formation, and is associated with Marine fossils of Devonian type.

The SECRETARY informed the meeting that His Excellency had intended opening the session by an inaugural address. Absence from town had prevented this, but His Excellency proposed making the address at the next monthly meeting. It was also mentioned that a paper by Mr. R. M. Johnston on the Tertiary Marine Deposits of Tasmania had been received in time for the present meeting. This, however, could only be read by the Rev. J. E. Tenison Woods, as he was prepared to illustrate and explain it by reference to a collection of fossils which accompanied the paper, and with which he was familiar. As Mr. Woods was absent on duty, the reading of this paper had to be postponed until his return to town, which was expected to take place before the April meeting.

A vote of thanks to the donors of presentations closed the proceedings.