ROYAL SOCIETY.

OCTOBER, 1865.

The usual monthly evening meeting of the Society was held on Tuesday, the 10th October, the Hon. R. Officer, Esq., V.P., in the chair.

Among the Fellows present were the Ven. Archdeacon Davies, Dr. Agnew, (hon. secretary), Lieut. Lloyd, R.E., Messrs. W. L. Dobson, F. Abbott, T. Stephens, H. Butler, J. Doughty, R. S. Bright, M. Allport, A. G. Webster, W. Stone, H. S. Wintle, E. S. Hall, &c. Dr. Brooke was also present, as a visitor.

The Secretary laid on the table the usual returns, namely :—

1. Visitors to Museum during September, 650.

2. Ditto to Gardens ditto, 1,779.

3. Plants supplied. To M. Allport, Esq., for planting on Franklin Island, 25 white Mulberry.

5. Books and Periodicals received.

Meteorological Returns :—

1. Hobart Town, from F. Abbott, Esq.

   (a) Table for September.

   (b) Summary of observations for ditto.

2. Port Arthur, from J. Boyd, Esq.

   (a) Table for August.

   (b) Reading of schooner's barometer for ditto.

3. Swansea, from Dr. Story.

   (a) Table for August.

4. Tamar Heads, from R. Henry, Esq.

   (a) Table for September.

5. Adelaide, S.A., from C. Todd, Esq.

   (a) Tables for July.

The Secretary read the usual Analysis of the Hobart Town Meteorological Table, and Health Report for the month by E. S. Hall, Esq.

The presentations to the Museum were as follows :—

1. Four specimens of Corallines, from Chapell Island. Presented by Mr. Babington.

2. Black Cormorant *(Phalacrocorax Carboides)*. From Mr. Oakley, New Norfolk.

3. Ditto. From Mr. Cawthorne.

4. Pelican *(Pelecanus conspicillatus)*. From Mr. Fulton, Hobart Town.

5. A curiously-twisted root of she-oak (?) Presented by J. Hayes, Esq., M.H.A.

6. Medal, Victoria and Albert, 1851. From L. W. Dessaur, Esq.

7. A Japanese coin. From W. Pitt, Esq.

8. Native tiger *(Thylacinus cynocephalus)*. From W. A. B. Gellibrand, Esq.

9. Forester kangaroo *(Macropus major)*. From M. Allport, Esq.

10. Geological Map and Sections of Province of Wellington, New Zealand. From His Honor the Superintendent, Wellington.

Mr. M. ALLPORT brought under the notice of the meeting the fact that the

Black Cormorant (*Phalacracorax carboides*) had lately been seen in unprecedented numbers about Hobart Town and the country districts in its vicinity. Many had even visited the pond in the Society's gardens. Of these two had been shot, and on opening their stomachs, a number of Tench were found. They were very troublesome in the vicinity of the salmon ponds, where upwards of ninety had already been shot. Many other rare water birds, the Nankeen Night Heron, (*Nyctocorax Caledonicus,*) the Maned Goose, (*Bernicla jubata*), the Tippet Grebe, (*Podiceps Australis,*) and the Australian Egret, (*Herodias syrmatophorus),* had also made their appearance in very unusual numbers. These visitations were probably due to the long continued dry weather in the centre of the Australian continent, and Mr. Allport thought it was advisable to place the matter on record, in order to see if in future years a drought of this character should be followed by similar phenomena.

Dr. OFFICER corroborated Mr. Allport's statement, as to the trouble which the Cormorants gave at the salmon ponds, where the greatest vigilance was necessary on the part of Mr. Ramsbottom and others to guard the Trout and Salmon from their felonious attempts.

Mr. ALLPORT also exhibited eggs of the common Land Snail *(Bulimus sp.)* so frequently met with on Mount Wellington, and elsewhere. The eggs were about the size and shape of those of the Humming Bird, and white in color.

Archdeacon DAVIES presented samples of the hair of the Angora Goat, and also of the cross between it and the common Goat. The former is a beautifully white silky staple of eight and a half inches in length, the latter of about the same length, but dark in color, and presenting more the appearance of wool. Both samples were from flocks belonging to Mr. John SWAN, of Avoca.

Mr. M. ALLPORT reported that the English Perch *(Perca fluviatilis)* introduced by him (after several failures) four years ago had at length spawned. These fish were placed on their arrival in a small artificial pond, in Mr. J. Allport's garden, constructed so as to resemble as nearly as possible a weedy pool in a rivulet, 15 feet long by 12 wide, 3 feet 6 inches deep at one side, and gradually sloping to a few inches at the other. The spawn is hung in a ribbon like mass amongst the weeds, upon close inspection it is resolved into a net work of beads 18 inches long by 2 inches broad. That from one fish probably contains 300,000 ova. The labour involved in keeping the parent fish supplied with tadpoles (their favorite food), worms &c., has been at times very great. Besides the fish this pond has been instrumental in thoroughly establishing the English White Waterlilly, and other waterplants, and two species of the larger English pond snails of which our own streams are singularly deficient. The habits of several interesting Crustaceans and the metamorphoses of a large number of Ephemeral flies have also been observed, the pond thus furnishing a very efficient Aquarium on an extensive scale.

Mr. F. ABBOTT read a paper (supplementary to a former one on the same subject) on the best mode of establishing a system of Time Signals in Tasmania.

The importance of the subject was fully recognized by the meeting, and it was hoped that in time further action would be taken in the matter.

Mr. STEPHENS regretted that he had not had leisure to prepare a paper on the subject which he had to bring before the society, but would offer some general remarks on the origin of drift gold, with special reference to the probability of the existence of deep leads at Fingal. The original matrix of all loose gold, whether in the form of minute scales, crystallised masses, or waterworn nuggets, was to be looked for, as all were probably aware, in the quartz veins or dykes intersecting the old silurian rocks. Where, therefore, these were absent, or deeply buried below upper palæozoic or carboniferous rocks it was idle to search for gold. The silurian rocks consisted chiefly of slates, grits, and sandstones, almost always more or less beat and contorted, and generally exhibiting well defined cleavage. The immediate source of the gigantic pressure which had produced these remarkable contortions of the strata could not always be pointed out. In Victoria, where the main axis of elevation runs from East to West, the silurian rocks do not appear to have been affected by the disturbing agency to which the present watershed of

the country owes its origin, the line of strike preserving a general meridional direction. Through these rocks, but never passing upwards into the Upper Palœozoic rocks, run the auriferous quartz dykes or reefs usually inclined at high angles, and maintaining in almost all cases a direction parallel to the general strike of the primary rocks. In the course of time by the process of denudation deep valleys and ravines were excavated. The softer parts of the rocks were first washed away, next the quartz reefs and veins, which broken up and rolled together in the course of ages produced the vast accumulations of waterworn boulders, pebbles, and gravel which now cover extensive areas in all the known auriferous districts. At a later period commenced the filling up of the hollows which had thus been formed on the earth's surface, but not before the larger portion of the gold, liberated from its rocky matrix, had quietly settled down in the deepest portions of these ancient valleys and river beds, there to be concealed for ages by the deposits of sand, clay, and gravel which now form the Tertiary beds of the greater part of the interior of Victoria. Igneous or volcanic agency assisted in the levelling process. Vast sheets or layers of basalt (popularly known as *bluestone*) occur, sometimes interposed between successive deposits of drift; sometimes covering the whole surface of the country, and frustrating all conjecture as to the position or course of the old valleys deeply buried beneath. To trace out and work these deep leads of gold was now the chief business of alluvial mining, the more accessible portion of the gold-fields having been practically worked out. (Mr. Stephens explained the difference between 'surfacing,' 'shallow sinking,' and 'deep sinking,' by means of diagrams, and illustrated his further remarks by reference to a sketch map showing the chief physical features of the Fingal district). Geological conditions similar to those described in Victoria might be recognised, he said, in the silurian rocks and quartz reefs of certain portions of the Fingal district, and it was this circumstance which chiefly justified the hope of paying returns whether from quartz reefs or deep leads. The presence of tertiary deposits had not, however, been ascertained, and, if these at all, were probably concealed by the alluvium and post tertiary drift which now occupy the valley of the South Esk, and the bottoms of the valleys and ravines which open into it. It was a question whether these extended separately across the main valley, underneath the present bed of the South Esk, or were simply tributaries leading ages ago to some old river bed following the general course of the modern river, but perhaps hundreds of feet below the present surface of the ground. The latter theory appeared the most probable, but in either case the lowest part of the valley might be safely regarded as covering the chief part of the gold, which has been washed out of the surrounding hills, in the course of the extensive denudation to which they have been subjected. That no important accumulations of gold now existed in the upper portions of the tributary valleys and gullies the experience of the past few years had shown. By degrees, when once the reputation of the quartz reefs of Fingal has been satisfactorily established, companies might be formed for the purpose of testing the deeper grounds in the slopes which lead from near Mangana to the S. Esk, and it was quite possible that indications might be met with sufficiently favorable to justify the extension of operations under the bed of the river itself. But such undertakings required a larger amount of capital, confidence, and judgment, than are likely to be available at Fingal for some time to come. In working deep leads at Ballarat and elsewhere companies were sometimes engaged five years in bottoming a single shaft, and many thousands of pounds had to be expended before any returns could be obtained. This, too, when the general course of the deep leads had been ascertained. Here there was nothing known with certainty as to the existence of a deep lead, and only a charlatan would attempt to speak positively of its precise situation. The present duty of every one interested in the prosperity of Fingal was steadily and perseveringly to push forward the development of her quartz reefs; to look to Victoria as a place where quartz mining has been more efficiently and successfully prosecuted than in, perhaps, any other part of the world, and therefore to be regarded as our best guide; and above all to beware of adventurers who profess to have discovered new processes for the extraction of gold which throw all former discoveries into insignificance: It

was for others to try experiments in critical affairs of this kind. The people of Tasmania ought to have learnt by this time that in mining matters it was cheaper to profit by the experience of others, than to buy their own. Mr. Stephens remarked, in conclusion, that a good deal of misapprehension prevailed as to the per centage of gold required to constitute a 'paying' reef. It depended, of course, entirely upon the cost of extraction, and this varied according to the size of the reef, the facilities for quarrying the quartz; the chemical conditions attending the distribution of the gold, &c. &c. In some mines in Victoria a yield of 3dwt to the ton paid a handsome dividend; in others, where the quartz was known to contain gold at the rate of several ounces to the ton the work had to be abandoned on account of the difficulty and cost of extraction. What would be the average yield of the principal reefs of Fingal was not yet known, nor what proportion of the returns would be absorbed by the working expenses; but there was every reason to suppose that the quartz, which is already known to contain more or less gold, will yield remunerative returns to skilful and judicious manipulation.

A vote of thanks having been accorded to Mr. Abbott and Mr. Stephens, and also to the donors of presentations, the meeting broke up.