MAY, 1870.

The monthly evening meeting of the Society was held on Tuesday, the 10th May, J. Barnard, Esq., in the chair.

The undermentioned gentlemen, who had been previously nominated by the Council, were, after a ballot, declared duly elected as members of the Society :—

1. The Rev. Dr. Bleasdale, of Melbourne, as corresponding member.
2. R. P. Adams, Esq., Hobart Town.
3. Frederick B. Walker, Esq., Rhodes.

The Secretary (Dr. Agnew) laid on the table the usual Monthly Returns, viz. :—

1. Visitors to Museum during April, 642.
2. Ditto to gardens ditto, 1,314.
3. Seeds received at gardens.
4. Time of leafing, &c., of a few standard plants in gardens.
5. Books and periodicals received.
6. Presentations to Museum.

Meteorological Returns.

1. Hobart Town, from F. Abbott, Esq.—Table and summary for April.
2. Melbourne, from R. J. Ellery, Esq.—Tables for Jan., Feb., and March.

The presentations to the Museum were as follows :—

1. From Mr. Edwards, Kewstoke, near Oatlands—A large specimen of Carnelian.
2. From Sir Robert Officer—A Platypus *(Ornithorynchus anatinus)*.
3. From Mr. J. Smith, brig Waverley—A collection of Snakes, Lizards, &c., from China.
4. From Mr. T. Parker—Two specimens of auriferous Quartz from Pioneer Reef, Waterhouse.
5. From T. L. Gellibrand, Esq.—A Wedge-tailed Eagle (*Aquila fucosa*).
6. From Mr. Ballantyne—A curious Fish, caught in the Derwent.
7. From Mr. M. Allport—A Rail (*Rallus Lewinii*).
8. From Mr. Pearsall, Muddy Plains—A Chestnut-faced Owl (*Strix castanops*)
9. From Mr. J. J. Low, Richmond—A Black-cheeked Falcon (*Falco melanogenys*).
10. From Master Ernest Bayley—A Falcon (*Falco frontatus.*)
11. From Mr. Ikin—Two spines from Sting Rays.
12. From Mr. O. E. Hedberg—Jaws of Shark.
13. From Mr. S. H. Wintle—Two specimens of Granite from the Tomahawk River.

Fossil Ripple marks from Southport.

In reference to the last named presentation the following note from Mr. Wintle was read :—"These fossil ripple marks I obtained from a vertical section of the carboniferous strata at Southport, Tasmania. The shales in which they occur are overlaid by a bed of sandstone 12 feet thick. Underneath the smallest ripple marks I found a beautiful fossil impression of *Glossopteris angustifolia* (McCoy). The cliff is one of great geological interest."

The following list of new species of Tasmanian land shells furnished by Mr. Legrand was laid on the table. The specimens have been named and

described by Dr. J. Cox, of Sydney, and will form the subject of a paper at a future meeting of the Society :—

Helix medianus.	Helix plexus.
H. helice.	H. dubitans.
H. cœsus.	H. vigens.
H. austrinus.	H. fulgetrum.
H. occultus.	H. Gouldi.
H. ruga.	H. Ramsgatensis.
H. marchianæ.	H. Halli.
H. Stephensi.	H. Nelsonensis.
H. Agnewi.	H. Allporti.

The Secretary intimated that he had received from Sir Robert Officer some specimens of the so-called Red Spider, which had recently affected the hops at New Norfolk, with a request to be furnished with any information that the microscope, or the experience of any of the Fellows could throw on its exact character, habits, food, &c. These observations had been commenced, but as it had been found advisable to compare the insect from the hop with those of a similar character from the apple tree, the hothouse, and possibly other sources, no report could be laid before the present meeting, but he hoped before the next some definite information would be obtained on the subject, if the season be not too far advanced for procuring the perfect insect.

Mr. M. Allport made the following remarks on the present state of the salmon question :—As every step in the experiment for the introduction of salmon has been from time to time recorded in the transactions of the Society, it now becomes necessary to complete the series by a short account of the last step. As the Fellows are aware, one of the smolts captured in the Derwent was sent to Dr. Günther for his opinion as to its species, and that opinion is embodied in the following extract from a letter which I received by the last mail :—"Some weeks ago a small specimen of a salmonoid was handed over to me by the Secretary of the Zoological Society, with the request to determine the species, and to let you know the result of my examination. The example is 9 inches long, and from its general appearance, small size of the scales, form of the caudal fin, arrangement of teeth on the palate, number of pyloric appendages, there cannot be the least doubt that it is an example of sea trout *(Salmo trutta)*. I am informed that a lot of sea trout eggs were forwarded to Tasmania several years ago, and hatched in May, 1866; if you never on any other occasion received eggs of salmo trutta, it would follow that this example is 3½ years old, and consequently what may be called a stunted individual, as a fish of that age ought to have attained to a larger size, and exhibit a certain development of the sexual organs, of which no trace could be discovered in the individual sent." Dr. Günther is with respect to reptiles and fish, what Professor Owen is to mammals, and it would simply be presumption in me to doubt the correctness of his opinion as to the species of the particular fish sent to England, but I must demur to his assumption that such fish was 3½ years old, and therefore a stunted individual. The fact that it was immature, affords to my mind the most conclusive proof that the fish sent was not 3½ years old, and my view is borne out by all the facts relating to the salmon trout eggs received in this colony, such facts being far more within the cognizance of the Tasmanian Salmon Commissioners than Dr. Günther. In April, 1866, the only salmon trout eggs ever received by the Commissioners arrived. In May and June following they hatched. The majority of the fry were placed in the same pond with the salmon fry of that year, and the remainder were placed in a separate pond and rill, specially prepared for them, in the hope that these salmon trout might arrive at maturity, and spawn be obtained from them without

the usual migration to the sea. A large proportion of the young salmon trout which were placed in the salmon pond, assumed the smolt dress, and left for sea in October, 1867 ; and in October, 1868, all that were then left, departed in the same manner. Of the salmon trout retained in the special pond, several put on the smolt scales in November, 1867, became uneasy at their detention, and one or two which jumped out of the pond died ; of these latter, one is on the table before you. In November, 1868, the same restlessness under restraint was exhibited by the remaining fish and many died, leaving only 12 survivors. These 12 fish, however, were kept well fed, and became handsome silvery fish, weighing from half a pound to more than one pound, and in June, 1869, five pairs of them constructed spawning rids and deposited ova. In September last this ova hatched, and the two fish now exhibited are of the produce of such ova —these two fish are seven months old, and do not in the least resemble stunted unhealthy fish ; nor could they be the progeny of such. They bear about them the distinct characteristics of the parr of one of the migratory salmonidæ, and when fresh from the water exhibited in great perfection the brilliant orange coloured fins from which the parr of *Salmo trutta* derives its trivial English name. Bearing in mind all the above facts, I must now revert to Dr. Günther's assumption, that the fish sent to England was hatched from the ova received here in 1866, and was consequently 3½ years old. I have shown that the last of the fish derived from those eggs, which were at liberty to do so, went to sea in November, 1868 ; in June, 1869, the smallest of those unnaturally detained in fresh water weighed half a pound, had unmistakeably passed the smolt stage, and had arrived at sexual maturity. Yet, we are asked to believe that the fish sent to England had found its way more than 30 miles from its birthplace, and had been 12 months in salt water without adding one inch to its length, or one ounce to its weight. If it can be shown that it is possible, nay even probable, that our original salmon trout, spawned in Tasmania in the winter of 1868, all difficulty in accounting for the capture of the specimen sent to England vanishes, without the necessity of having recourse to the forced and unnatural assumption that such specimen was an abortion. Our first salmon trout smolts went to sea in November, 1867. If any of those smolts returned (as many British authorities assert they would) in February following the fish that so returned must have spawned in the winter of 1868, that is to say in June of that year, and a portion of the fry hatched in September, 1868, would have arrived in October, 1869, at the very stage in which the specimen sent to England was when caught. As scientific truth is, to my mind, of greater importance than the discussion of mere theories, I must here point out that none of the fish retained in the special pond did spawn in the winter of 1868, but it is quite possible that their unnatural detention from salt water retarded their sexual development for a year beyond their brethren, which were free to seek their own advantage in suitable waters. In conclusion, I may state that the beautiful specimen now before you, and which was caught six weeks later than that sent to England, will be forwarded (with the other specimens referred to) to the Zoological Society, London, by the outgoing mail, and be submitted to the examination of any scientific men taking an interest in the subject. In this large specimen, I found the rudimentary sexual organs well developed, and, further, by the help of the written descriptions of Yarrell and Dr. Günther, I have come to the conclusion that it is a true *salmo salar*.

Judge Francis, of New South Wales, offered some remarks to the effect that he had had long and varied experience of fishing generally, and although rather a practical sportsman than a scientific naturalist, was perfectly well acquainted with the appearance and habits of the Salmonidæ

in the lakes and streams of England, Wales, and Scotland. He had also frequently compared the young of the different varieties with each other and could speak with confidence in the matter. He had not the slightest doubt that the specimen now before them (caught Dec., 1869) was a true salmon, and a fine and well-grown fish. He would say it had been about eight weeks at sea—was assuming the grilse condition, and would in the course of the autumn have proceeded up the river to spawn. As to the fish sent home (of which an exact counterpart was said to be before the meeting) he could not in any way agree with Dr. Günther's hypothesis that it might be a stunted or abortive individual, incapable of performing the functions of reproduction. In the case of a young salmon in one of the Welsh brooks, which had been accidentally debarred from proceeding to sea, he had had the opportunity of noticing how these unnatural circumstances affected the appearance of the fish, and certainly its lanky and big-headed figure was unmistakeable. There could, therefore, be no difficulty in coming to a conclusion as to a fish being stunted or otherwise, and no one could look on the comely and shapely specimen before them and say it was imperfect in any respect. Even admitting, however, that the fish sent home was, as Dr. Günther admitted, a *Salmo trutta*, that fact alone was confirmatory of the entire success of the experiment. They knew, that of the *Salmo trutta*, about two hundred only were sent to sea, whilst of the *Salmo salar* not less than four thousand five hundred were liberated from the breeding ponds. If, therefore, several of the former had been caught in the salt water, so full of health and vigour as to show they were at home in these southern waters, *a fortiori* how much more certain was it that the true salmon had escaped all their imaginary danger, and in far greater numbers than the others had become thoroughly acclimatised.

Discussion of a conversational character ensued, in which the Rev. Dr. Bleasdale, Mr. Buckland, Mr. Giblin, Mr. Stephens, and Judge Francis took part. In reply to an observation by the latter to the effect that he wished we had a fresh supply of salmon ova at command, in order to try if in the event of the young fish being retained in the ponds, and never allowed to proceed to sea, they could arrived at maturity, and prove capable of perpetuating their species.

Mr. Allport stated that in part II, of the proceedings of the Zoological Society for 1868, there was a paper on the supposed arrest of the development of the salmon when retained in the fresh water, by James Murie, M.D., F.L.S., F.G.S., and from which paper it would appear that the experiment had been virtually tried if it could be positively ascertained that the fish experimented on were really specimens of salmon salar, but on this point authorities differed. In the account of the experiment the most curious circumstance noted was that in the summer of the second year several of the fish assumed the silvery scales of the smolt, which scales were partially lost in the autumn following, the parr markings becoming again distinctly visible. This was repeated in the summer and autumn of the third year—after the fourth year the fish came to a standstill as to growth, and at the end of the fifth year only two remained, figures of which accompany the paper referred to. These figures show them to have been large-headed long-bodied fish with the parr markings distinctly visible, and bearing little resemblance to a healthy smolt.

A vote of thanks having been accorded to the donors of presentations, the meeting terminated.