

PROCEEDINGS OF THE SOCIETY.

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MEETING OF 10TH APRIL, 1889, AT KING'S COLLEGE, STRAND, W.C.,  
PROF. CHARLES STEWART, F.L.S., VICE-PRESIDENT, IN THE CHAIR.

The Minutes of the meeting of 13th March last were read and confirmed, and were signed by the Chairman.

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The List of Donations (exclusive of exchanges and reprints) received since the last meeting was submitted, and the thanks of the Society given to the donors.

Didelot, L., Du Pouvoir Amplifiant du Microscope. 2nd edition. From  
86 pp., and 1 plate. (8vo., Paris, 1887) .. .. . Mr. Crisp.

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Messrs. Dick & Swift's new form of Petrological Microscope was exhibited by Mr. Crisp, and the detailed description read to the meeting (*supra*, p. 432).

The Chairman thought that the instrument was very ingeniously contrived, and very well adapted to the particular purpose for which it was designed.

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Dr. Van Heurck's communication was read giving the preliminary particulars of a Botanical and Microscopical Exhibition which it was proposed to hold at Antwerp in 1890 in celebration of the 300th anniversary of the invention of the Microscope. Further and more detailed information was promised hereafter.

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Mr. G. Masee's paper on "A Revision of the Trichiaceæ" was taken as read, the Secretary explaining that its length and extremely technical character rendered it impossible for any one but the author to give a *résumé* of it. It would be published *in extenso* in the Journal, and would be a valuable addition to their proceedings (*supra*, p. 325).

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Mr. E. M. Nelson's paper on "The Action of the Wide-angled Illuminating Axial Cone and its relation to the Diffraction Theory," was, in the absence of the author, read by Mr. Crisp, many of the illustrations being enlarged upon the board by Prof. Stewart.

The paper was discussed by the Chairman, Mr. Crisp, Mr. Ingpen, Prof. Lowne, and Mr. T. F. Smith, and will be printed in the next number of the Journal. The discussion occupied the rest of the evening.

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The Chairman announced that the next *Conversazione* would take place on May 1st.

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New Fellows.—The following were elected *Ordinary* Fellows:—  
Messrs. William Gadd, C. W. Hoagland, M.D., and George H. F. Nuttall, M.D.

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MEETING OF 8TH MAY, 1889, AT KING'S COLLEGE, STRAND, W.C.,  
THE PRESIDENT (DR. C. T. HUDSON, M.A., LL.D.) IN THE CHAIR.

The Minutes of the meeting of 10th April last were read and confirmed, and were signed by the President.

The President said that some new species of *Asplanchna* had recently been described by M. de Guerne, but upon examining the figures which were given in illustration he had come to the conclusion that this observer had studied the teeth by the examination of specimens which had either been crushed or treated with caustic potash. The teeth of these rotifera were extremely brittle, and if any pressure was applied to them, as was most frequently done, they were very liable to be fractured, and the pieces would then get scattered about in various directions. There were cases in which new species had actually been made out of them in accordance with the positions in which they happened to fall. By means of a drawing upon the black-board, the President showed the effects of such crushing in producing a variety of alterations in the apparent structure of the trophi of *Asplanchna*. The solid triangular base of the ramus, which was described as one of the new characters, was nothing more than a muscular portion at its lower end, namely, the half of a stout muscle which embraced the free end of the fulcrum and sloped upwards to a projection on either ramus. To make it quite clear how a difference in the aspect or position would produce some of the alterations described, he had made a large model in wax composition of the trophi of *Asplanchna*, by means of which he pointed out how some of the so-called new forms could readily be seen by viewing the model from different points.

The President also said that amongst the nominations read that evening was the name of Mr. Thomas Whitelegge, a gentleman living in Australia, who had sent him a great many beautiful things at different times. Amongst these was a specimen of *Lacinularia*, which was very curious, consisting of a number of separate individuals associated together in a cluster, but all united at their lower ends to a common stem of remarkable length, the lower end of which was spread out as a kind of solid foot. A representation of the form having been drawn on the board and further described, the President said it was possible to suggest a way of accounting for this curious growth by supposing that these rotifers, being capable of secreting a viscid material, had done this somewhat abundantly, and being drawn upwards by the action of the trochal discs, an elongation of that viscid material would take place, and then, by the motions given to them by the ciliary action, these stems would first be plaited together, and ultimately become fused.

In modelling the trophi of *Asplanchna*, he had trusted to a formula he had met with for making the material; this was equal parts of bees'-wax, olive oil, flake white, and lead-plaster. The result was as they saw before them; something which it was very easy to mould in any required form, but which remained so soft that it could not be touched without spoiling. If any of the Fellows present could tell him how to make something of the kind which would harden he should be very much obliged.

Mr. J. D. Hardy asked the President whether, in the case of the

*Lacinularia* to which he had drawn attention, there was any gelatinous surrounding to the stem.

The President said that the spherical portion at the top of the stem was gelatinous, but the stem itself was not so; at the upper end it was white and clear, then lower down it got more horny, and became more and more yellow as it continued towards the base.

Mr. Hardy thought that the idea of making a model such as the President exhibited that evening was an extremely good one, and that if that plan was more adopted they would be able to get a better idea of the facts of the case than any drawing could give them. He suggested that if a photograph of that model was taken under a good oblique light, it would give any one a far better notion of the structure than any other mode of representation.

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Mr. T. F. Smith said he had brought for exhibition the Abbe diffraction-plate, shown by means of stops of various apertures, to clear up a point of difference between Mr. Nelson and Prof. Lowne during the discussion which took place at the previous meeting. Having drawn a series of diagrams upon the board to represent the bands of lines on the plate, parallel and crossed at right angles and obliquely, he proceeded to point out that the effect of reducing the size of the aperture in the stop was simply to alter the resolving power; that where the lines were resolved they were shown correctly, and where not resolved they were blotted out altogether. In further illustration of his meaning, Mr. Smith exhibited a number of photomicrographs of the various bands taken under the conditions to which he had alluded.

Mr. Crisp said that Mr. Smith had not explained the point he desired to make as the result of his observations.

Mr. Smith said his conclusion was that it was not possible to falsify the appearance of the structure of an object with central light, and that if it was resolved at all it was under those conditions resolved correctly.

Mr. Crisp inquired if Mr. Smith remembered where the contrary had been stated?

Mr. Smith could not give the reference asked for, but thought something to that effect had been stated at the Quekett Club.

Mr. Crisp was glad to hear that it did not originate with this Society; he had feared it was some heresy emanating from them which Mr. Smith was endeavouring to combat.

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Messrs. C. D. Sherborn and F. Chapman's "Additional note on the Foraminifera of the London Clay" was read, describing thirty-four varieties of Foraminifera from the London Clay exposed in the drainage works some time since carried out in Piccadilly.

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Dr. A. C. Stokes' paper on "New Peritrichous Infusoria from the Fresh Waters of the United States" was read.

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The President said they had heard with great regret of the death of Dr. Warren de la Rue, one who was so well known to all as a

scientist that it was needless for him to say more than to express their deep sense of the loss sustained by the removal of so eminent a man, who had formerly held the office of Vice-President of their Society.

Mr. J. Mayall, jun., thought it was a point of special interest to be mentioned in connection with Dr. de la Rue that in quite the early days, when the Microscope was not so perfect as at present, he acquired for himself considerable skill in its application, and was the first to make a systematic study of Nobert's lines, some account of which was published in the third edition of 'Quekett on the Microscope.' He corresponded with Nobert at the time upon the subject, and was one of the first to produce photomicrographs.

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The President said he might mention that a new species of *Brachionus* had been found by Mr. Rousselet which presented some very interesting features. He would not anticipate Mr. Rousselet by then describing them, but would draw upon the board the sideways appearance of the lorica of another curious species from Australia which had been sent to him by Surgeon Vidal Gunson Thorpe, R.N. He felt sure that most of the mistakes made in the descriptions of these creatures arose from attempts to kill them first and examine them afterwards; to get correct results from this was hopeless, because when killed they became opaque, and began to disintegrate almost at once. Another instance he might mention was that of Dr. E. von Daday's elaborate memoir on *Pedalion*, in which there were drawings untrue to nature, owing to their having been made from creatures brought home in spirit, and consequently distorted in many ways. All the speaker's own drawings had been made from life, after two months' constant observation, in consequence of the extreme difficulty of getting the creature into the proper position for seeing the particular portion wanted; and he must certainly say that of all rotifera *Pedalion* was the most aggravating one he knew of in this respect. For the correct observation of Rotifera there were only two directions to be given: first, see them alive; second, for reagents use patience.

Mr. J. D. Hardy said it might be worth mentioning that the best way he knew of to keep these rotifera quiet for a sufficiently long time to be able to draw them, especially when they were such active creatures as the one last mentioned, was to make a strong solution of common loaf sugar, and add it drop by drop to the water until the rapid motion of the rotifer was stopped. This did not prevent them from keeping up their ciliary action, and the liquid remained sufficiently transparent to make observation quite easy.

The President said this idea was quite new to him, and inquired how much syrup it was proper to add to the water.

Mr. Hardy said the quantity would depend upon the size of the cell. The plan was merely to mix loaf sugar and water until a syrup was produced about as thick as treacle, and then to add this drop by drop to the water in the cell until the rotifer was fairly fixed.

The President inquired if Mr. Hardy had ever tried this plan with *Asplanchna*, because whenever he had tried mixing anything with the water he found that they either blew themselves out quite tight, or else shrivelled up altogether.

Mr. Hardy said that the syrup being added very gradually, diffused itself through the water, so that the density of the liquid very soon got to be the same within the creature as outside, which he thought would prevent the distortion mentioned. He did not remember to have tried the plan with *Asplanchna*, but he had done so with *Bursaria*, which was a very active animal.

The President said he should certainly try the method. There was another substance sometimes used for the purpose, and that was a very weak solution of salicylic acid. The rotifers would swim about in this for hours, and then slowly die. This was the only way in which he had found it possible to see *Synchaeta*. Another thing sometimes used was a very weak solution of chromic acid. A weak mixture of the two acids was also a good preservative.

Mr. Hardy asked whether the acid did not kill the rotifers.

The President said that the solution used did so after six hours or so, but it also preserved them.

Mr. Hardy said that the syrup had the great advantage of simply quieting without killing them, and their freedom of action could be afterwards restored by the addition of more water.

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The following Instruments, Objects, &c., were exhibited:—

Dr. Hudson :—Wax model of the trophi of *Asplanchna*.

Mr. T. F. Smith :—Abbe Diffraction-plate and Photomicrographs.

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**New Fellows** :—The following were elected *Ordinary* Fellows :—  
Messrs. Joseph R. Ratcliffe, M.B. ; Thomas W. Shore, M.D., B.Sc. ;  
Clarence M. Weed, M.Sc. ; and Rev. B. Jones Bateman.

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