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29th April, 1870.

REV. EUGENE O'MEARA exhibited specimens of *Gomphonema balticum* (Cleve), kindly supplied to him by Herr Cleve himself, there being, therefore, no possible doubt about the identity of the form. The point to which Mr. O'Meara wished, however, to draw attention was that there existed well-marked transverse striæ, as well as a central nodule, characteristics which are not described nor figured by Cleve, so that his account of this species requires this important correction.

Mr. Archer exhibited several Desmidiæ rarely met with, and one at least new, taken on a recent visit to Kylemore, County Galway, in company with Professor E. Perceval Wright. Amongst these was to be noticed *Sphærozosma secedens* (de Bary), a form not yet recorded, so far as Mr. Archer was aware, by any other observer, nor hitherto detected by himself. Though referred to the genus *Sphærozosma* by de Bary, this form belongs properly to de Brébisson's genus *Spondylosium*. On this latter genus de Bary makes no further comment in his work ('*Untersuchungen über die Conjugaten*') beyond simply quoting de Brébisson's original description in Latin ('*Liste des Desmidiées observées en Basse-Normandie*'), and adding the remark, "unknown to me." The minute connecting processes between the joints characteristic in *Sphærozosma* are wanting in *Spondylosium*, and, simple as this distinction may be, it yet seems to be of value, and even Dr. Wallich seems to have seen the necessity for such a genus when he instituted the genus *Leuronema* ('*Ann. of Nat. Hist.*, 3rd ser., vol. v, pp. 186 and 193), which corresponds nearly completely with *Spondylosium*, to which name Dr. Wallich's must, therefore, seemingly give way. It is true, indeed, that some of the described forms referred to *Leuronema* (Wallich) are three-angled in transverse view, whilst others, like the known European and British forms, are plane. Still, even the three-angled forms could not be correctly kept out of the genus *Spondylosium* on that ground merely, just as we have compressed as well as angular species in the genus *Desmidium*, and even in *Staurastrum*. There could be no doubt of the identity of the form now shown with that of de Bary; if there was any difference traceable it would be the slight concavity shown in his figure at the top or end of the segments was less expressed in the present specimens.

Another desmid new to Britain, shown by Mr. Archer, from the same locality, was the form designated by Prof. Wittrock *Staurastrum*

lave, var. *Clevei*. Side by side with the examples Mr. Archer showed that author's figure ("Anteckningar om Skandinaviens Desmidiaceer," Upsala, 1869, p. 18, fig. 9, *a* and *b*, in 'Nova Acta Societ. Upsal.,' vol. vii), which is excellent, and leaving not the smallest doubt of the identity of the two forms. Whether, indeed, the very elegant form in question might or might not really more correctly be regarded as quite distinct from *St. lave* (Ralfs), Mr. Archer felt unable to do otherwise than leave the point in abeyance, as it would be premature in him to venture to speak decidedly, as he had not yet had an opportunity to see veritable examples of the typical *St. lave* (Ralfs); still, he suspected they would prove distinct. The present form is an exceedingly elegant one—indeed, far prettier than one might think from the figure merely.

Mr. Archer also showed examples of Dr. Barker's new *Staurastrum*, first detected by him at Glengariff, and called *St. elongatum* ('Minutes Dubl. Micros. Club,' in 'Quart. Journ. Micros. Sci.,' vol. ix, n. s., p. 424). The specimens now exhibited from Kylemore, Connemara, though comparatively few, were more numerous than they had occurred in any gathering made at Glengariff. It must, however, be accounted a rare and scanty form, and, so far as experience goes, seeming confined to our western districts.

Mr. Archer likewise showed a new species of *Euastrum*, from Kylemore, County Galway; this he had taken on a former occasion at Glengariff, but he had not had an opportunity to exhibit a specimen, nor did he record it pending seeing the figure of Professor Cleve's *Euastrum intermedium*. Thanks to that gentleman, he possessed a copy of his paper, and there could hardly be a doubt but that the present form was quite distinct therefrom. The forms which most resemble the present are, however, undoubtedly *E. intermedium* (Cleve) and *E. ansatum* (Ehr.); this latter common species Mr. Archer exhibited side by side for sake of contrast and comparison. It would be of little value to give here a description of this form, unaccompanied by a figure. This he would postpone for a little, till time permitted to put together this and a few other new forms he had in view. It would suffice here to mention that the thickened prominences on all the protuberant parts, and the thickened rounded elevation on each front surface of the segments, which are dotted, coupled with the small size of this form and its broadened depressed segments, all combined, would render it not readily to be mistaken for any other described *Euastrum*.

Professor E. Perceval Wright desired to mention that on microscopical examination of a section of the so-called *Myreosteon Higginsii* (Gray) the organism appeared to be some part of the bony skeleton of a fish.

Dr. Pearsall exhibited slides containing material taken from the stomach of a trout from the Annamoe River, Co. Wicklow. Some spicules were noticeable, also various diatoms. Amongst the latter Mr. O'Meara identified *Himantidium undulatum*, *Navicula rhomboides*, and *Tetracyclus emarginatus*, which last, he said, was of very rare occurrence in Ireland, never himself having taken specimens.

Mr. Archer desired to record the occurrence near Kylemore, County Galway, of the remarkable and curious organism of "Labyrinthulean" affinity, first detected in, as yet, but a single pool only in the County Westmeath (and briefly referred to in the minutes of the Club in this Journal, vol. x, n. s., p. 303); this station at a distance of close on 150 miles from the first at which it was found, thus widely extending the limits in Ireland of this form. It is possible, indeed, now that we know this production so far as to recognise it when seen, that it may be more common and widely-spread than we might suppose from its having been encountered in as yet but the two localities; these are, as is seen, however, widely remote. It would be of little value to expatiate here, further than has already been done, without figures, upon this singular form, beyond a mere record of a new locality, as to do so would require more space than could be available in Minutes like these, as well as reference to Cienkowski's account of the marine forms, to which the present offers so much resemblance, of an opportunity to do which, however, Mr. Archer hoped to avail himself on some future occasion.

19th May, 1870.

Dr. John Barker exhibited a piece of apparatus contrived by him for the purpose of catching atmospheric dust for microscopic examination, consisting of fanners enclosed in a tube, worked by a handle at the side, these destined to carry removable slips of glass, moistened with glycerine, in order to retain the deposit.

Dr. Barker also exhibited examples of an *Ædogonium*, doubtless *Ædogonium punctato-striatum* (de Bary), distinguished by the cell-wall being marked by spiral striæ of a dotted character, these finely and closely set; these seen in an empty cell, through and through, the upper and lower striæ being nearly in focus simultaneously, presented a somewhat decussate appearance. The examples now shown were not in fruit, rendering it impossible to say whether this characteristic of the filament itself accompanied any speciality of the fertile condition.

Mr. Crowe presented examples of *Stephanosphaera pluvialis*, accompanied by *Uvella*, from the Bray-Head Station—always pretty objects—the former interesting, as no further station had as yet been found in Ireland. Surely it cannot be restricted to that single locality, however?

Dr. Moore exhibited examples of a confervoid growth of a reddish colour, growing in tufts on the apices of the leaves of *Hypnum stramineum*, and having much of the appearance of a distinct alga, the moss with these appendages presenting a remarkable appearance. Notwithstanding, however, their seeming want of affinity with the moss upon which these tufts of filaments were attached, and the striking constancy with which they were confined to the extremities of the leaves, it is most likely they were truly protonematous growths, probably derived from the *Hypnum* itself by germination of spores, or—from the chances against the spores always alighting at the ends of the leaves—could they, on the other hand, be terminal

cells themselves, giving off these filaments, just as some mosses can give off buds, a supposition favoured by their constancy of situation? The septa between the joints were oblique, the cell-wall reddish, thus agreeing in character with certain "protonemata," and antagonistic to the assumption that this was an independent algal growth; but still it so may be, and in this latter view Dr. Moore was inclined to acquiesce.

Mr. Woodworth exhibited some fine micro-photographs which had been sent him from America by Colonel Woodward, executed by that gentleman, including (on various scales) the whole of Möller's type-slide of 100 diatoms, and all very sharp and beautiful.

Rev. E. O'Meara showed a slide of diatoms from African guano, supplied to Mr. Early, of the Chemical Laboratory, Trinity College. The material was cleaned by incineration, a process which in this case was most effective. Amongst the forms presented was a fine specimen of *Coscinodiscus Mossianus*.

Mr. Archer showed examples of *Staurastrum maamense* (ejus), and of *Micrasterias fimbriata* (Ralfs), both rare, and found in the recent gatherings from Connemara. The former is, as yet, altogether western. The latter occurs very scantily, and only seldom encountered, in County Wicklow and in County Westmeath.

23rd June, 1870.

Dr. Moore showed a preparation of the "collecting hairs" clothing the filaments of the stamens of a species of *Bulbenia*, forming a pretty and interesting object. These hairs presented a dense mass radiating from the "filament" all round, of considerable length, unicellular, and terminating in a somewhat clavate extremity, their walls marked by finely set, closely wound, spiral striæ. These latter, when viewed on a hair much collapsed, and then seen simultaneously on both upper and lower surfaces, presenting a decussate appearance. It could not be well made out whether these spiral striæ were due to a spiral marking or structure in the cell-wall, or to secondary fibres. Whether viewed under a low power as a whole, or more magnified to see the striæ, this formed an exceedingly pretty object.

Mr. Archer presented several examples of the conjugated state, showing the zygospores, of *Staurastrum furcigerum* (Auct.) = *Didymocladon furcigerum* (Ralfs). This had never before been recorded, although this fine species, whilst never abundant, is seemingly not amongst the rarities. The zygospore is rather large compared to the dimensions of the pair of conjugating cells in this species, orbicular, beset (but not very closely) by rather long and slender spines, these broadest at the base, whence they quickly taper into a linear shaft, and they are twice or thrice branched at the apex. Thus they are not exactly like those of any already known species, and they form a singularly elegant object.

Dr. Traquair showed preparations of the scales of *Calamoiethys*, being various sections well calculated to show the histological details,

and were those illustrative of his recent paper on this subject in the 'Annals of Natural History.'

Dr. Purser exhibited two microscopes—one by Nacet, the other by Hartnack—his principal object being to show the immersion lenses of those makers, which have gained so great a celebrity on the Continent. Dr. Purser claimed that they admit more light, have a greater working distance, and require much less pains in the illumination, than non-immersion lenses of the same power.—Dr. Purser likewise exhibited a stage upon which objects could be kept at an elevated temperature whilst under examination. He further showed some preparations illustrative of the use of chloride of gold and nitrate of silver in histological research.

Mr. Archer drew attention to the most abundant gathering of the unicellular alga, *Polyedrium lobulatum* (Näg.), he had met with, noteworthy, perhaps, as this not uncommon form generally occurs seemingly rather isolated. From another gathering he showed uncommonly large examples of a *Polyedrium*, more approaching the more rare *Polyedrium tetraedricum* (Näg.), but the angles more rounded, and without spines. It may remain a question if this be really a distinct thing. Only for its (comparatively) large size (about $\frac{1}{300}$ " in diam.) one might be inclined to regard this as *Polyedrium muticum* (Al. Braun), which, however, is recorded as only $\frac{1}{75}$ mm. in diam. (Al. Braun, in 'Algarum unicell. Genera nova,' &c., p. 94, in note).

Dr. Moore showed the beautiful and curious aquatic moss *Conomitrium Julianum* in various stages of development, which made very interesting microscopical objects in a young state. When the calyptra almost envelopes the whole capsule the bright purple teeth of the peristome are seen through it to good effect, and when more advanced and the calyptra removed the pyriform capsule with pointed lid is also a pretty object. Dr. Moore mentioned that he was indebted to W. Wilson, Esq., of Warrington, the veteran muscologist, for the possession of this rare moss, which he was cultivating successfully in one of the small conservatories in the Botanic Garden, in a jar filled with water. From his experience he believed it would be most valuable for cultivating in small fresh-water aquaria, in a similar manner as *Fontinalis antipyretica* or *Cinclidotus fontinaloides* are now grown, but much prettier than either.

21st July, 1870.

Mr. Crowe showed a *Cosmarium* from near Multyfarnham, which seems most likely to be new; it may be said to be medium-sized, its segments elliptic, longer than broad, rough with minute pearly granules; end-view circular; constriction shallow, acute. This is rather a difficult form to decide upon; it resembles somewhat *C. amœnum*.

Mr. Archer mentioned he had taken this *Cosmarium* both at Multyfarnham and at Glengariff the previous spring, but had kept it in abeyance until he might become acquainted with *C. amœnum*, and compare both with *C. cylindricum*.

Rev. E. O'Meara showed a slide of diatoms collected lat. 3 south, and long. 15 west, upon which he would more enlarge hereafter; he likewise showed an unidentified *Synedra* from a well at Ballinasloe, which he thought likely to turn out new, of which, however, more on a future occasion.

Mr. Archer drew attention to some examples of a production not in itself very attractive as a microscopic object, but on account of its incapability of being identified as to what it was or to what belonged, might possess some interest until those points should be decided, when, perchance, indeed it might turn out to be something sufficiently commonplace. He had noticed it first at Kylemore, Connemara, but had seen it since in several other places. Occasionally, at first glance under a moderate power, it might be taken for some elongate form of diatom, but that it certainly was not. The closest examination that could be bestowed upon it seemed to show that this was composed of a hyaline, somewhat tough, smooth and colourless membranous substance, which is folded longitudinally in a scroll-like manner. If formed of a membrane really so folded, it would appear as if it must be of a more or less circular outline, or of some such shape, and possessing a gradually diminishing width, the edge, which ultimately sticks out when folded, being curved or rounded. And that this is most likely so would appear from the fact that at each end of the object could be seen a zigzag line as if formed by the edge of the supposed longitudinally folded membrane, whilst, moreover, along the edges of the scroll several series of lines could be seen, each terminating where begins a zigzag line, these longitudinal lateral lines seemingly indicating the bounds of the folds. Further, mostly there appears a lateral wing-like projection, presumably the last uncoiled outer rounded edge of the membrane, these wing-like projections gradually diminishing in width till terminating at the beginning of the first or innermost zigzag lines. All the specimens presented these characteristics; in some might be seen this wing-like portion broader than in others, indicating a partial unfolding or less completed folding, or two wing-like projections, as if the sheet of membrane were doubled up the middle, then coiled, and both flaps left outwards. No contents or living portion could be noticed. If we take an elliptical piece of semi-transparent paper and fold it longitudinally, causing each fold as it is made to be very slightly wider than the preceding, finally leaving the last rounded portion of the paper projecting, and then hold the scroll thus made between the eyes and the light, the seeming structure and appearance of this (under a low power) *somewhat* Nitzschia-like object will to a great extent be realised. To this attempt to convey an idea of the thing or portion of thing now in question must be superadded that the examples are sometimes, though rarely, met with cohering or united in twos by the ends, and Mr. Archer mentioned that he had seen some instances in which four examples were so united in a parallelogram, enclosing a quadrangular space between them; or two or three scrolls are sometimes somewhat irregularly appended together, thus, indeed, losing their quasi-diatomaceous

aspect. So far only did observation as regards this not very striking but puzzling production reach. If a *folded membrane actually*, whence does it originate? If the exuvium of any creature, what power folds it into these seemingly methodically made-up scrolls? If it be such a "skin" or "cell-wall" of any organism, where are the living parts or the "contents"? The very inexplicability of this production would be Mr. Archer's excuse for drawing attention to an object so very unattractive to look at; indeed, he had to apologise for adding one more to the crude nondescripts he had before now drawn attention to, but perchance a record of such might educe from others some elucidation of a thing, it may be, very simple, though just now here to us, possibly from oversight or misapprehension, extremely enigmatical.

Dr. John Barker exhibited a large and handsome form of *Euglena* (which latter, indeed, all the forms are), which he was disposed to identify as *Euglena geniculata* (Duj.). It seemed, however, to agree with the forms referred to *Euglena spirogyra* (Ehr.) by Carter (in 'Ann. Nat. Hist.,' n.s., vol. xviii, pl. vii, fig. 87) in several details. The present form was large, of very slow motions, flexible, but not metabolic, prismatic in section and twisted; nuclear body central; "glair-cells" (Carter) two, one before and one behind the nucleus, these elongate, straight-sided with rounded ends, eye-speck large, body spirally striate, striæ uninterrupted (that is, not dotted), tail long, straight, obliquely set. Thus this agreed with Carter's figure, save that that does not depict the spiral striæ. But the description of *Euglena geniculata* and *E. spirogyra* attribute cylindrical or depressed bodies to those forms, whereas here it was prismatic. In this latter character, then, it agreed with the *Phacus tripteris* (Duj.) so called, but that form is described as without striæ. In this confused condition appears to be the identification of these handsome forms.

Dr. John Barker showed specimens from County Westmeath of a very pretty alga-form, found in Ireland but once only before by Mr. Archer, and, doubtless, the *Hormospora transversalis* (Bréb.). Dr. Barker was disposed, however, to think it distinct therefrom, and it certainly differs from de Brébisson's figure by the cells being stouter and more broadly elliptic, and not having the tendency to become grouped in fours within the characteristic investing mucous tube; but it coincides with the woodcut figure given in Rabenhorst's 'Flora Europæa Algarum Aquæ dulcis et submarinæ.' These very pretty examples were, at all events, quite identical with those previously taken by Mr. Archer at Kilbride, County Wicklow; it is seemingly rare.

Mr. Vickers showed examples of growing grapes attacked by the vine-fungus, and exhibited the strings of spores under higher powers.

18th August, 1870.

Rev. E. O'Meara exhibited and made some remarks on various specimens of the diatoms furnished in Herr Eulenstein's 'First

Century' just published, referring to the great interest of many which had already been very useful to himself, as well as to the great elegance of the preparations, one and all.

Mr. Archer showed fine examples of that handsome rotatorian *Noteus quadricornis*, which, at least in our walks, appears to be a rare form. He also showed *Anurea heptodon*, seemingly not common, and some other forms.

Mr. Archer showed various species of *Euglena* and *Phacus* in contradistinction, which presented themselves in a rather fortunate collection for these forms; some of these it was not an easy matter to identify; Dujardin's figures do not appear sufficiently graphic in certain cases. Amongst those shown attention was drawn to a much twisted form of *Phacus longicauda*; this often occurs with one twist, but the present examples were three or more times twisted, and, moreover, presented the characteristic of possessing a keel- or wing-like projection upon one face, giving the form still more of a screw-like aspect, and forming a pretty object as it progressed along, turning on its axis as it went, and presenting a varied outline as it revolved. This could not be regarded as else than a form of *Phacus longicauda*, and might seemingly go to indicate that *Phacus triquetra* (*Euglena triquetra*, Ehr.) and *Phacus pleuronectes* (Nitzsch) were but one and the same. These were both shown in the water, as well as that most tiny and, perhaps, most elegant of all, *Phacus pyrum* (*Euglena pyrum*, Ehr.). It would seem, perhaps, even to further indicate that the form brought forward at last meeting by Dr. Barker, considered by him to be *Euglena geniculata*, and now again shown for comparison, may be the representative of but one truly distinct form only, called by the various names of *E. geniculata*, *E. spirogyra*, and even *Phacus tripteris*, supposing the striæ on examples of the latter to have been overlooked. There is, however, a considerably smaller form than these, darker in colour, the skin brownish and thicker, and, above all, distinguished by the spirals being due to rows of thickened dot-like prominences, not uninterrupted minute ridges; this form Mr. Archer showed side by side in the present gathering, so fortunate for forms appertaining here. If this latter be the true *E. spirogyra*, then Dujardin's figure is erroneous in presenting the striæ as linear ridges, not as rows of conspicuous dots. This latter form occurs in several places. There was also shown a very elegant form, probably the *Euglena acus* (Ehr.). This is long, slender, fusiform, not flexible, swimming along by no means slowly; eye-speck rather large and bright red, anterior extremity truncate, "tail acute; this, in outline of the anterior extremity, might somewhat call to mind the aspect of a "pipe-fish," without its flexibility. All these are, however, hard to discriminate, but, nevertheless, appear to be pretty constant to themselves. And besides certain specialities of the externals, those of the contents appear to be often characteristic too. Still, how far these are actually "specific" in their importance, though seemingly constant in their recurrence, would require a great deal more experience and research to determine.