

laufe darin, dass die Furchung verhältnismäßig zu früh, oder im höheren Grade als es sonst geschieht, »inaequal« wird.

Zum Schlusse erlaube ich mir noch eine Bemerkung in Bezug auf *Polygordius*-Eier zu machen. Eine große Anzahl der aus lebendigen Thieren herauspräparirten und entweder im frischen Zustande, oder nach der Behandlung mit Reagentien untersuchten *Polygordius*-Eier besaß je zwei deutliche große Kerne (jeder mit einem Kernkörperchen). Ich brauche wohl kaum besonders hervorzuheben, dass diese zwei Kerne nicht ohne Weiteres zu Kernen der zwei ersten Segmente werden: die Zelltheilung bei der Embryonalentwicklung des *Polygordius flavocapitatus* verläuft in gewöhnlicher Weise.

Ich sehe wohl ein, dass meine oben besprochenen Beobachtungen sehr unvollständig sind; da ich aber keine Hoffnung habe, meine Arbeit früher als im künftigen Sommer fortsetzen zu können (obgleich es gerade jetzt eine sehr günstige Zeit für das Studium der *Saccocirrus*-Entwicklung ist), so möchte ich einstweilen von den von mir erlangten Resultaten doch einen kurzen Bericht erstatten.

Odessa, den 30. Juli/11. August 1881.

2. Note on the European Comatulæ.

By P. Herbert Carpenter, M.A., Eton College, Windsor.

There appears to be a good deal of uncertainty among the naturalists who have to deal with the Echinoderms of the North Atlantic and Arctic Oceans as to the exact characters of *Antedon celtica* Norman (Barrett sp.). I have been asked about it more than once, but in the absence of a type-specimen have been unable to give a very definite answer. A species with very long many-jointed cirrhi, which is common on the NW Coasts of Scotland, has been generally regarded by Sir Wyville Thomson and other British naturalists as identical with Barrett's type, no detailed description of which has ever been published; while his two type-specimens disappeared, no one knew where. Recently, however, one of them has been discovered at the British Museum by Prof. F. Jeffrey Bell, and I have compared with it some of the specimens dredged by H.M.S. Porcupine in 1869 in the North Minch. I found (as I expected I should) that the two forms are identical, but that the species described as *Ant. celtica* by Sladen¹ from the dredg-

¹ Duncan and Sladen, A Memoir of the Echinodermata of the Arctic Sea to the West of Greenland. London, 1881.

ings of the English Arctic Expedition in Lat. 81° N. is a totally distinct one. This has been already noticed by Sladen, who examined some of the Porcupine specimens after he had described the Arctic ones.

Sladen identifies his specimens with those obtained by the Austrian Arctic Expedition, and also referred to *Ant. celtica* by von Marenzeller². Judging from von Marenzeller's description, I believe Sladen to be right³ in this identification. But despite the differences between *Ant. celtica* Sladen and *Ant. celtica* Barrett sp. the specific name *celtica* may conveniently be retained for the former type. For I find that Barrett's type is merely a somewhat dwarfed and less robust variety of the *Antedon phalangium* Marion (Müll. sp.) of the Mediterranean. This fine species inhabits somewhat greater depths than the common *Comatula mediterranea*, extending downwards to 100 fath., and is consequently somewhat rare. It was twice dredged on the Tunis coast by H.M.S. Porcupine in 1870, viz. — from 50—100 fath. in the Bay of Benzert, and from 30—120 fath. on the Skerki Bank. Its presence off Marseilles has been since revealed by the dredgings of Prof. Marion to whose kindness I am indebted for specimens of the type.

Between these localities, however, and the Island of Skye, *Ant. phalangium* has not yet been obtained, though *Ant. rosacea* is common at Roscoff and all up the W. coasts of England, Wales, and Southern Scotland.

Besides these two British species a third has been proposed by Sir Wyville Thomson, though it has never yet received a thorough recognition. This is the *Comatula fimbriata* Miller = *Comatula Milleri* J. Müller = *Antedon Milleri* Norman⁴. The chief distinction between this species and *Ant. rosacea* is the length of the ovaries. These are short and rounded in *Ant. rosacea* but long in *Ant. Milleri*, extending over more than half the length of the pinnules, as in *Ant. Eschrichtii*. I have examined a few specimens of the latter type, and am inclined to think that this distinction is a good one, and that others are correlated with it. As far as I have seen at present, the common Mediterranean form is that with the long ovaries; but a very few specimens with short ovaries were obtained by the Porcupine in the Bay of Benzert and on the Skerki Bank, together with quantities of *Ant. phalangium*. I am

² Wiener Denkschriften, Bd. XXXV. p. 380.

³ Since the above lines were written I have been enabled, by the kindness of Dr. v. Marenzeller, to examine the specimen in question. It is entirely different from *Ant. celtica* Barrett sp., but is identical with the species obtained by the British Arctic Expedition of 1875, as surmised by Sladen.

⁴ On the genera and species of British Echinodermata. Ann. and Mag. Nat. Hist. 3. Ser. Vol. 15. 1865. p. 102.

now endeavouring to work out the relations of the British to the Mediterranean *Comatulæ*, and refrain from speaking positively upon this point until I have been able to examine specimens from a greater variety of localities. I shall therefore be extremely obliged to any fellow-worker who would send me *Comatulæ* from localities in the Mediterranean, other than Naples and Marseilles.

By the kindness of Prof. G. O. Sars I have been able to compare *Ant. rosacea* with the Scandinavian species *Ant. petasus*, and I find that the two are entirely distinct and not identical as supposed by some writers. *Ant. petasus* has more numerous cirrhi with slightly longer joints than those of *Ant. rosacea* and its axillaries are more quadrate. The armjoints are relatively longer, and the pinnules on the second and third brachials more nearly equal.

In conclusion I may mention that *Antedon celtica* Sladen was dredged in 410 fath. in Davis Strait by H.M.S. Valorous in 1875, and South of Halifax in 51 fath. by the 'Challenger'. The specimens obtained at the latter locality approach very closely to those of *Ant. Eschrichtii* from the same spot, though the more Northern forms of the two species are entirely distinct.

3. Die ehemalige Landverbindung zwischen Mauritanien und Spanien.

Von Dr. W. Kobelt in Schwanheim a/M.

Eine längere Sammelreise an den Küsten des westlichen Mittelmeeres, die ich vom März bis Juli dieses Jahres im Auftrage der Senckenbergischen naturforschenden Gesellschaft gemacht, hat mir die Gewissheit ergeben, dass der ehemalige Landzusammenhang zwischen Süd-Spanien und Marocco eine weit größere Ausdehnung gehabt hat, als man gewöhnlich annimmt, und mindestens bis zu dem Meridian von Oran und Cartagena zurückgereicht hat. Nicht nur sind die Molluskenfaunen von Oran und Cartagena unter sich viel ähnlicher, als die von Oran und Tanger oder von Cartagena und Gibraltar, sondern mit dem Meridian von Cartagena verschwinden auch einige der Arten, welche für die Küste des Mittelmeeres charakteristisch sind und ihr von Syrien bis dorthin getreulich folgen (*Helix variabilis* und *vermiculata*); sie fehlen in ganz Marocco und Spanien, treten dagegen wieder auf an der französischen Westküste; sie sind wahrscheinlich längs des Meeresarmes vorgedrungen, der in verhältnismäßig neuerer Zeit den Golf von Biscaya mit dem Mittelmeer verband. Ihr Fehlen scheint mir unwiderleglich zu beweisen, dass sich früher eine Küstenlinie von Oran nach Cartagena erstreckte und Nordafrika mit Südspanien in breitester Ausdehnung verband.

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Zeitschrift/Journal: [Zoologischer Anzeiger](#)

Jahr/Year: 1881

Band/Volume: [4](#)

Autor(en)/Author(s): Carpenter P. Herbert

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