

BRITISH SPONGES<sup>1</sup>

NEARLY twenty years have elapsed since the publication of the first volume of Dr. Bowerbank's "Monograph of the British Sponges" by the Ray Society, and the posthumous fourth volume, just published, has been edited, with additions, by the Rev. A. M. Norman. That these four volumes contain an immense mass of facts and observations about our native sponges; that they in addition possess a really splendid series of illustrations, few will care to deny, and yet it must be difficult for a student of the more modern school of biological science to fairly appreciate them. The descriptive and physiological portions of the first volume, despite the quarter of a century spent by the author thereof in the preparation of his work, are apt to excite one's surprise, while the profound ignoring by Dr. Bowerbank of the work of co-temporary authors, leaves the description of the species in the second and third volumes often quite delusive.

Those naturalists who can look back for some thirty years or more will not find it difficult to account for all this. Leaving out of the question for the moment how little was then known about sponges, how clumsy and unscientific were the attempts to examine them, it is more important still to recollect how few were the opportunities in these islands of scientific biological training. Which of our universities gave any training in modern biological research? and the anxious inquirer as to the beginnings of life, as to the structure of its lower forms, as to the proper method of such research, could find no voice crying in the many colleges of our country.

Things have changed greatly since then, and the man who at the period referred to might have been treated as a master would now probably not be tolerated at all. The late Dr. Bowerbank, though as a youth fond of astronomy, chemistry, botany, and geology, received no scientific education. A partner in an extensive business concern, he amused his leisure hours with the pursuit of science as an amateur; of an active and pleasant turn of mind, we owe to him in great measure the origin of our Palæontographical Society, of the Microscopical Society, and also of the Ray Society.

In 1841 a storm occurring while he was at Brighton threw a mass of sponges on the beach, and for the next thirty-five years Dr. Bowerbank made the group of sponges his favourite study. "He was a pioneer," writes his friend, the editor of this volume, "who struck out a new line. As he had begun alone, so he went on alone in his own way, not so much disregarding as seldom or rarely noticing the views of others." It is for this reason that hardly any synonyms will be found in the previous volumes of this work; indeed Dr. Bowerbank was in the habit of not even referring back to his own pre-described species.

However differently the first three volumes of Bowerbank's British Sponges may be regarded, all will agree that this fourth volume is one not only indispensable for the correct understanding of its predecessors, but that the editor's own special additions have made it a work that must be in the hands of every student of this group.

Of the special editorial work we would notice the complete list of species described in all the volumes, with references so complete that it forms as it were a key to the whole. The supplying of recent synonyms, though a most laborious undertaking has been accomplished in a manner to call for the warmest praise. The giving a table of geographical distribution, in which the columns "Abyssal" and "100-500 fathoms" have been partially filled in from Mr. Carter's Report of the Sponges dredged in the *Porcupine* Expedition of 1869 and 1870. This table makes it clear that the Sponge Fauna of many parts of our seas remain

<sup>1</sup> "A Monograph of the British Sponges," by the late J. S. Bowerbank, LL.D., F.R.S., &c. Edited, with additions, by the Rev. A. M. Norman, M.A., F.L.S. Vol. iv. Supplementary. (London: For the Ray Society, 1882.)

almost wholly unexplored, and it is to be much hoped that the very deficiencies exhibited here will have a tendency, among other causes, to induce our younger naturalists to take up so fine a field of research. Mr. Norman, who has a more extended knowledge of the zoology of our coasts than any living naturalist, unhesitatingly asserts "that no other class of animals offers to the student so rich a field for exploration, or one in which he is so likely to meet with so many new and strange forms."

Another important addition to this volume is the catalogue of all works and papers published on the sponges. To the specialist this forms a deeply interesting appendix, and while some few memoirs have escaped the patient research of the author, the pains he had to take to find this out only increases our admiration of the fulness of the list.

Through all the four volumes such frequent mention is made of Mr. Norman's name that it may be not without interest to state that while he gave Dr. Bowerbank all the aid in his power during the progress of the work, placing his collection unreservedly in Dr. Bowerbank's hands, yet that he found himself frequently obliged to dissent from the conclusions of the author. It was hard indeed to convince Dr. Bowerbank against his will, as the writer knows, from a vain attempt carried on through the whole of a winter's evening, to persuade him to see a Coelenterate structure in what Dr. Bowerbank regarded as the "oscula" of Hyalonema.

It will be useful to specialists in the group of sponges to know that Dr. Bowerbank's collection is now preserved in the British Museum. A brief notice of Dr. Bowerbank is appended to this volume. In calling attention to it the editor writes: "Few naturalists of the present generation will be aware, until they have read it, how much the progress of natural history in Great Britain in years gone by was fostered and furthered by the energy, zeal, and enthusiasm of our late kind friend," and perhaps on reading it some may be inclined to follow in his footsteps only working out the history of our British Sponge on modern methods and with our new lights.

## EXPLORATION IN SIAM

A CORRESPONDENT sends us the following:—Mr. Carl Bock has just returned to England, after a long and difficult journey from Bangkok to the northern frontiers of Siam and Laos. Leaving Bangkok on November 9 last, in a steamer placed at his disposal by the King of Siam, Mr. Bock ascended the Menam as far as Raheng, whence he proceeded overland to Lak'on, which was reached on December 27. Here he was delayed for twelve days by a dispute with the local chiefs, who imposed on him a fine of fifteen rupees for an alleged assault on a *Phya* or notable; but on January 7 he succeeded in getting away, and reached Chengmai on the 11th. Here he remained, making geological observations till February 2. He found the country fertile, and well cultivated in parts, but the people, as a rule, lazy and superstitious. Leaving here with a caravan of 6 elephants and 20 coolies, he pushed through a hilly, rugged country, to a new settlement at Muang Fang, the site of an ancient city, at one time the capital of Western Laos. Here the few inhabitants were busy clearing the forest and jungle, and Mr. Bock had excellent opportunities of adding to his collection of the fauna of the country. Tigers were abundant and bold, and their raids on the newly-introduced cattle were attributed to the presence of the traveller. Near here he visited the famous cave of Tam-tap-tau, the entrance to which is some 70 or 80 feet up the side of a limestone hill of about 300 feet high, and which is most difficult of access. In the middle of the cavern is a gigantic figure of Buddha, in a reclining posture, thickly gilded, and surrounded with a curious assortment of water jars, cloths, and idols of bronze. wood,

and stone, brought there by devotees. Behind this, again, is another figure of Buddha, erect, and in the act of giving a blessing. From Muang Fang Mr. Bock went to Tatong, a small Ngiou village on the River Mekok, which is here only 150 feet across. This stream he followed down to its point of junction with the Mekong, which is twice as wide here as the Menam at Bangkok. Ascending the Mekong, Mr. Bock went to Chen Tsen and Chengmai, where again he had difficulties with the natives, who destroyed nearly all his collection of animals, &c. Hence he returned down the valley of the Mekong, and ultimately reached Bangkok on June 14.

THE COMET

MERIDIAN observations of the comet which was first detected in this country by Mr. Ainslie Common, at Ealing, at 10.45 a.m. on September 17, were made at the Observatory of Coimbra on the 18th, 19th, and 20th, and the following first approximation to the orbit has been deduced from them by Dr. Hind :—

Perihelion passage September 17<sup>h</sup> 10<sup>m</sup> 47<sup>s</sup>, M.T. at Greenwich.

Longitude of perihelion	... ..	271° 39' 5"
"    ascending node	... ..	347° 44' 6"
Inclination	... ..	37° 9' 6"
Logarithm of perihelion distance	... ..	8.09201

Motion—retrograde.

These elements bear a striking resemblance to those of the great comet of 1843 and 1880, and it hardly admits of a doubt that we have here a return of that body, which will have experienced an amount of diminution of velocity at the perihelion passage on January 27, 1880, sufficient to cause the last revolution to occupy only two years and eight months, and which if experienced to the same extent on the 17th of last month, may bring the comet round again in October 1883.

The comet was perceived in the forenoon of September 18, at many places in the South of France, Spain, Portugal, Italy, &c. From Nice we read :—"Toute la ville a admiré aujourd'hui (September 18), pendant cinq heures, un astre nébuleux brillant vers 3° à l'ouest du soleil." It was seen a day earlier at Reus. M. Jaime Pedro y Ferrier reports : "Le dimanche, 17, à 10h. du matin, les habitants s'arrêtaient avec étonnement sur les places pour admirer la comète visible près du soleil vers 1° 5' à l'ouest. Elle était si brillante qu'on l'apercevait à travers de légers nuages. En l'examinant à l'aide d'une jumelle munie d'un verre noir, on distinguait la queue qui s'allongeait en s'élargissant." The comet was observed at 11 a.m. on September 22, by Prof. Riccò, with the refractor of the Observatory at Palermo: its approximate position at noon was in R.A. 11h. 5m. 39s., and Decl. -1° 51', according to a communication in the *Giornale di Sicilia* of the 24th, from Prof. Cacciatore, director of the Observatory; it was not then visible without a telescope, but on the following morning, shortly before sunrise, it was visible to the naked eye, exhibiting a very distinct nucleus, and a tail about 6° in length, leaning towards the south.

A circular from Prof. Krueger, editor of the *Astronomische Nachrichten*, states that the comet was observed at Vienna on September 28, at 17h. 15m. Vienna mean time, in right ascension 161° 28', and declination -5° 51'. Prof. Auwers observed it at St. Vincent, on his voyage from Hamburg to Punta Arenas, to take part in the observation of the coming transit of Venus. Signor Luciano Toschi found it very distinct to the naked eye at Imola, in Italy, on the morning of the 25th, the apparent length of the tail being equal to the distance between Sirius and  $\kappa$  Orionis, which assigns it an extent of more than 15°.

The Coimbra meridian observations, to which reference has been made, furnish the following places :—

Greenwich M.T.	Right Ascension.	Declination.		
			h.	m.
Sept. 18 <sup>h</sup> 01 <sup>m</sup> 05 <sup>s</sup> 2	... ..	11 30 58	... ..	+ 1° 22' 24"
19 <sup>h</sup> 00 <sup>m</sup> 16 <sup>s</sup> 6	... ..	11 21 59	... ..	+ 0 24 38
19 <sup>h</sup> 99 <sup>m</sup> 43 <sup>s</sup> 7	... ..	11 15 24	... ..	- 0 25 32

It appears probable that between the time of Mr. Common's observation on the 17th, some hours before the perihelion passage and the meridian observations at Dun Echt and Coimbra on the following day, material perturbation of the elements defining the position of the plane of the orbit may have taken place; at any rate, the above orbit deviates considerably from the Ealing observations. Assuming that the comet is identical with that discovered by M. Cruls at Rio de Janeiro on the morning of September 12, and that he has obtained a good series of observations of position on the following days, it will be interesting to compare the elements deduced from them with those calculated upon observations made subsequent to the perihelion passage.

From a circular which we have received from the Observatory of Palermo, it appears that Prof. Cacciatore utilised the appearance of the comet in an unwonted manner; we read: "Mentre l'Italia tutta commuovesi per la grande sciagura toccata ai nostri fratelli delle provincie venete e lombarde, ed in ogni regione costituisconsi con nobile e patriottico slancio comitati di soccorso per venire in aiuto a tanti mali, a secondare il pietoso intento, l'Osservatorio aprirà la sue sale all'alba del 26 alle ore 5 precise, a quei generosi visitatori, che versando una contribuzione di L. 200 vorran godere del sorprendente spettacolo osservandolo al grande e magnifico nostro Refrattore. Siam certi che la sperimentata filantropia della classe agiata di Palermo non renderà vano l'appello dell'Osservatorio. Per tal guisa l'apparizione di questa cometa, che in altri tempi sarebbe stata segnata come foriera dell'ira divina, e causa delle attuali miserie verrà invece registrata come apparizione benefica alla umanità."

[Since the above was in type, we learn by a communication from Mr. David Gill, dated Royal Observatory, Cape of Good Hope, September 11, that the comet was remarked by Mr. Finlay, the First Assistant, at 5h. a.m. on September 8, or four days before it was found by M. Cruls, at Rio de Janeiro. An exact determination of position on the following morning gave—

Cape M.T.	R.A.	Decl.		
			h.	m.
Sept. 8, at 17 13 58	... ..	144 59 51.4	... ..	- 0° 45' 30.0"

Observations were made on the morning of discovery, but the comparison star was not identified with certainty.

Prof. Riccò reports marked changes in the spectrum of the comet from day to day, from Palermo observations.

In the *New York Daily Tribune* of September 21, the identity of this comet with that of 1843 and 1880 is pointed out by Prof. Lewis Boss.]

SPECTROSCOPIC WEATHER DISCUSSIONS

TO readers of NATURE who have attended years ago to Mr. Norman Lockyer's most accurate quantitative determinations, by spark spectroscopy, of the relative proportions of silver and gold in certain alloys; and to Prof. Hartley's similar quantitative analyses more recently by photographed spectra of the strength of different solutions of metallic salts—there need be no difficulty in allowing, that if a meteorological spectroscopy can ordinarily show the standard fact of watery vapour being in the atmosphere, it may also, by a little extra nicety and tact in its use, be able to quantify to some extent the proportions of such aerial supply of water-gas at different times, and so to become, in conjunction with the natural