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THE

QUARTERLY JOURNAL

OF THE

GEOLOGICAL SOCIETY OF LONDON.

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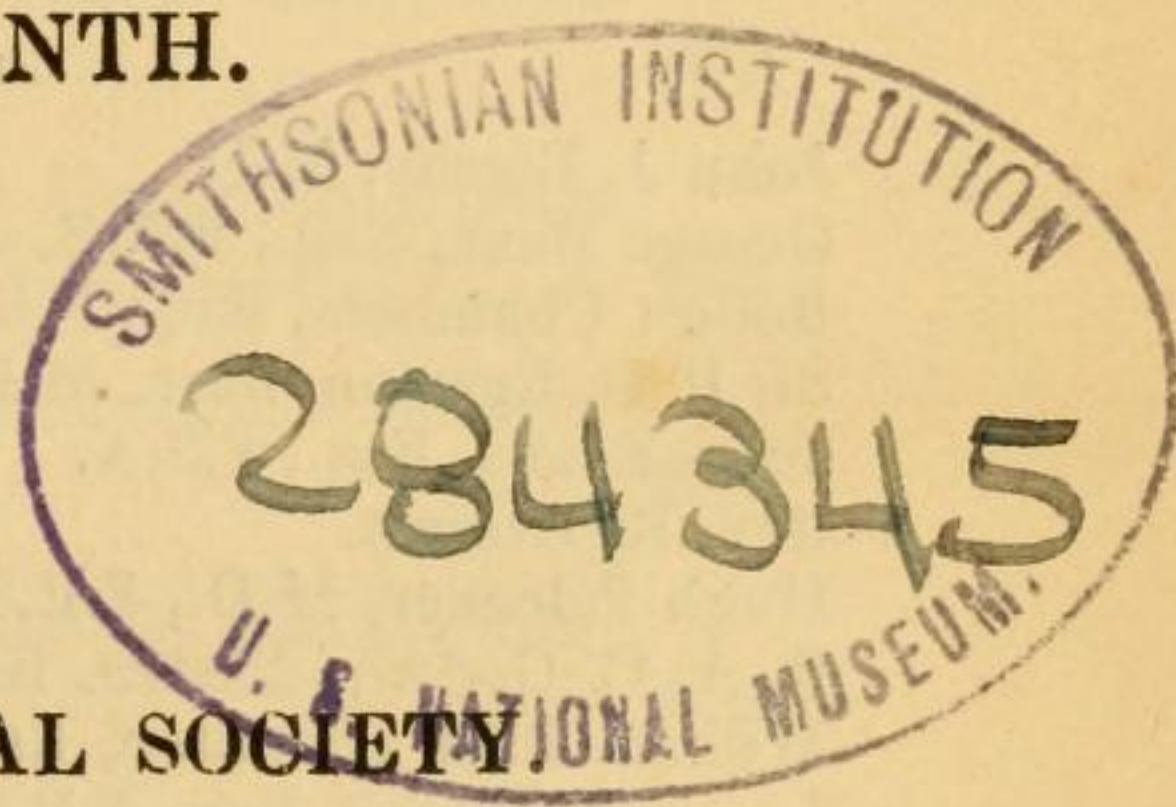
THE ASSISTANT-SECRETARY OF THE GEOLOGICAL SOCIETY.

Quod si cui mortalium cordi et curæ sit non tantum inventis hæerere, atque iis uti, sed ad ulteriora penetrare; atque non disputando adversarium, sed opere naturam vincere; denique non belle et probabiliter opinari, sed certo et ostensive scire; tales, tanquam veri scientiarum filii, nobis (si videbitur) se adjungant.
—*Novum Organum, Præfatio.*

VOLUME THE NINETEENTH.

1863.

PART THE FIRST.
PROCEEDINGS OF THE GEOLOGICAL SOCIETY



LONDON:

LONGMAN, GREEN, LONGMAN, ROBERTS, AND GREEN.

PARIS:—FRIED. KLINCKSIECK, 11 RUE DE LILLE; J. ROTHSCHILD, 14 RUE DE BUCI;
LEIPZIG, T. O. WEIGEL.

SOLD ALSO AT THE APARTMENTS OF THE SOCIETY.

MDCCCLXIII.

Ammonites which Dr. Porter had not been able to determine. There were also *Cerithium Damonis*, *Serpula vertebralis*, *Belemnites gracilis*, *Pecten*, 2 sp., *Nucula*, *Corbula*, *Avicula*, abundant remains of *Ichthyosaurus*, *Plesiosaurus*, *Pliosaurus*, and *Steneosaurus* (?). The author had also found a portion of a spine of *Ptychacanthus ornatissimus*, and a few palatal teeth of *Strophodus subreticulatus*. What, however, he particularly called attention to in this communication was the occurrence of large quantities of fossil wood, in pieces sometimes more than a yard in length, highly bituminous, quite black, having a fracture similar to jet, and capable of almost as high a degree of polish as that mineral; it is also exceedingly brittle, and, when exposed to the air, cracks in all directions. Most of the specimens are flat, and bear on their surface impressions of Ammonites and other shells.

3. *On a new MACRUROUS CRUSTACEAN (SCAPHEUS ANCYLOCHELIS) from the LIAS of LYME REGIS.* By HENRY WOODWARD, Esq., F.Z.S.

[Communicated by Professor Morris, F.G.S.]

[PLATE XI.]

THIS beautiful and very perfect Crustacean (from the collection of James Harrison, Esq., of Charmouth) was obtained from the zone of *Ammonites Bucklandi* of the Lower Lias of Tape-ledge, near Lyme Regis.

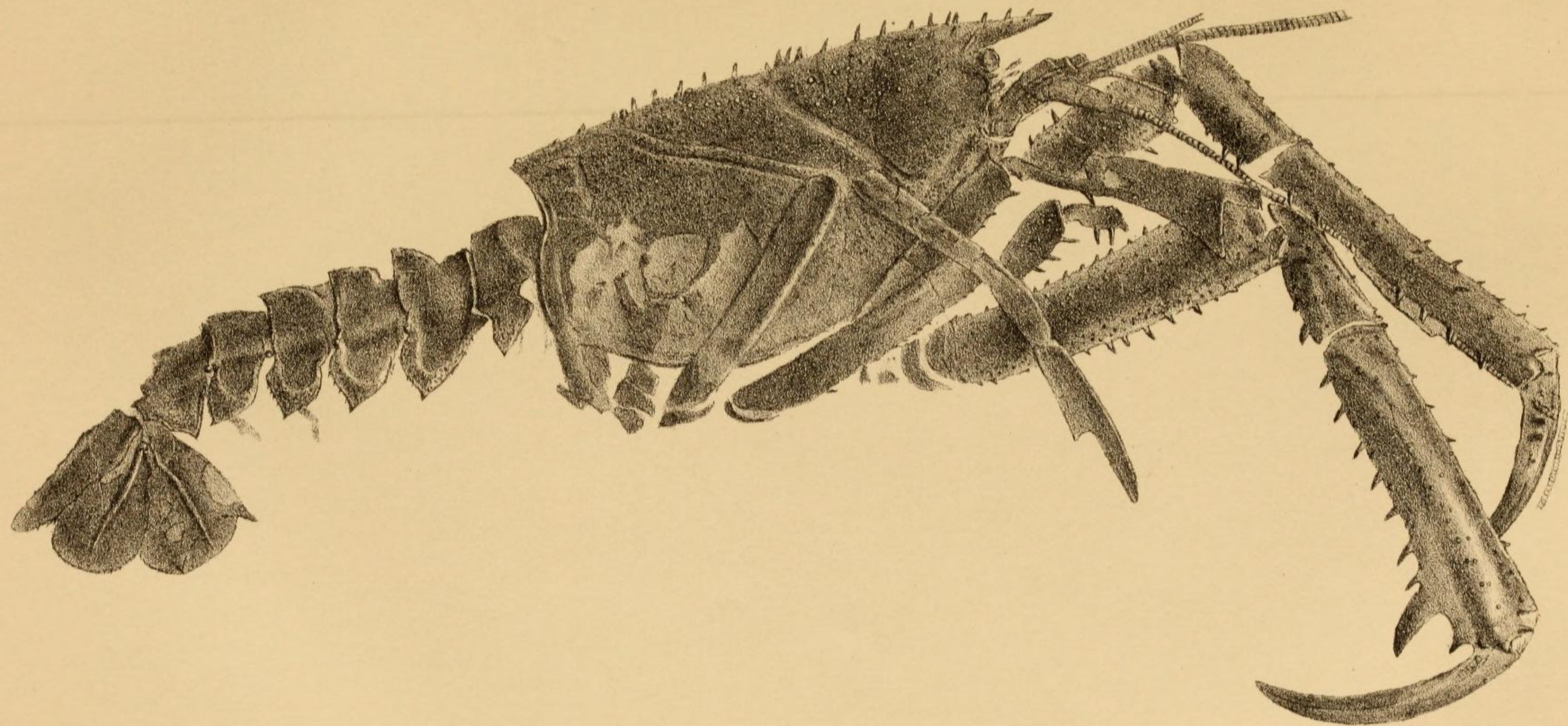
A complete detached fore-limb of large size, from the collection of E. C. H. Day, Esq., of Charmouth; an imperfect fore-limb, and perfect termination to a secondary limb, from the collection of Capt. Hussey; together with two fragmentary portions of limbs and abdomen, from the collection of Mr. J. W. Marder, of Lyme Regis, are all the remains of this new and very remarkable form hitherto discovered.

From the length of the fore-limbs, their monodactylous extremities, and also the peculiar spatulate form of the penultimate joint of the succeeding pairs of limbs, I am convinced of the propriety of placing it near Bronn's genus *Megacheirus**, many species of which are described and figured in Münster's 'Beiträge zur Petrefactenkunde,' Part II., from the Lithographic Limestone of Solenhofen.

That genus has been obtained from the Oxford Clay of Wiltshire and Normandy, and from the Inferior Oolite and Lower Lias of Bavaria.

There are, in the British Museum, several examples of the genus *Megacheirus* from Solenhofen, and also from the Oxford Clay of Wiltshire; but I have only been able to refer to the figures and descriptions given by H. von Meyer and F. A. Quenstedt, of the species

* The name *Mecocheirus* of Germar (1826) would have been entitled to priority over Bronn's *Megacheirus* (1836), but Germar omitted to give a definite description of his fossil. *Megacheirus* should also properly include the genus *Pterochirus* of Bronn, all the *Megacheiri* being "wing-fingered," although the fringe of hair upon the fore-arms is not always preserved.



Woodward del. Geo. West lith.

W. West, imp.

SCAPHEUS ANCYLOCHELIS, H. WOODW.

found in the Oxfordian Oolite of Normandy*, and those occurring in the Inferior Oolite† and Lower Lias‡ of Bavaria.

After careful comparison, I am satisfied that our Liassic Crustacean is quite distinct from any of these.

SCAPHEUS, gen. nov.

The carapace of *Scapheus* differs from the nearly smooth cephalothorax of *Megacheirus*, which is quite destitute of the spines and prominent rostrum so conspicuous in this fossil; and the smooth, slender fore-limbs of *Megacheirus* (considerably exceeding the entire length of the body) contrast strongly with the more robust spiny arms and great terminal hooks of *Scapheus*. In the basal joints of the outer antennæ, the form of the abdominal segments, and the laminæ of the tail, this new genus is also distinguished by well-defined characters. I propose to name the only known species, represented by Mr. Harrison's specimen, *Scapheus ancylochelis* §.

The long monodactylous fore-limbs are quite peculiar to these fossil genera of Crustacea. The nearest living analogues are found in the fossorial group *Thalassinidæ*, but the resemblance is only evident in the structure of the limbs and in the hirsute character of both limbs and abdomen; the termination of the fore-arms in *Scapheus* being similar to *Ranina*, another burrowing Crustacean of a different group. The abdomen, however, in nearly all the true fossorial species is more or less rudimentary, and but little adapted for natation, whereas in this genus the marginal (or *epimeral*) portion of the abdominal segments is as well developed as in *Nephrops* or *Homarus*; and the laminæ of the tail and the traces of false abdominal feet also indicate a Crustacean well adapted for swimming. Taking these points of structure into consideration, we cannot suppose this to have been an habitual burrower, but simply as searching for its food and concealing itself among stones, for moving which its powerful fore-limbs seem well adapted, although (from the very rudimentary character of the fixed ramus of the penultimate joints) but little suited for organs of prehension.

The great similarity of the Crustacea of our English Lias with those from Solenhofen has appeared to me to be a most interesting point, and I hope hereafter to offer figures and descriptions of several others not yet enumerated from our Lias, and all analogous to those of the Upper White Jura of Bavaria.

SCAPHEUS ANCYLOCHELIS, spec. nov.

Cephalothorax one-third longer than deep. Rostrum prominent,

* Palæontographica, vol. i. p. 144. t. 19. f. 2-19.

† Der Jura, p. 520. t. 69. f. 8-11. This species, described by H. von Meyer under the name of *Eumorphia socialis*, from Dives in Normandy, &c., is the same which Quenstedt describes as *Mecocheirus socialis*, from the Inferior Oolite of Bavaria. It is much smaller than *M. longimanus* from the Solenhofen limestone.

‡ Quenstedt describes two species from the Lower Lias of Bavaria—*Mecocheirus grandis*, Q. (p. 88. t. 11. f. 15, 16), and *M. olifex*, Q. (p. 89. t. 11. f. 17). I consider *M. grandis* more nearly related to our Lias genus than to *Megacheirus*, so far as Quenstedt's figures permit me to judge.

§ From *σκάφεινς*, a "digger," and *ἀγκύλοχῆλης*, "with hooked claws."

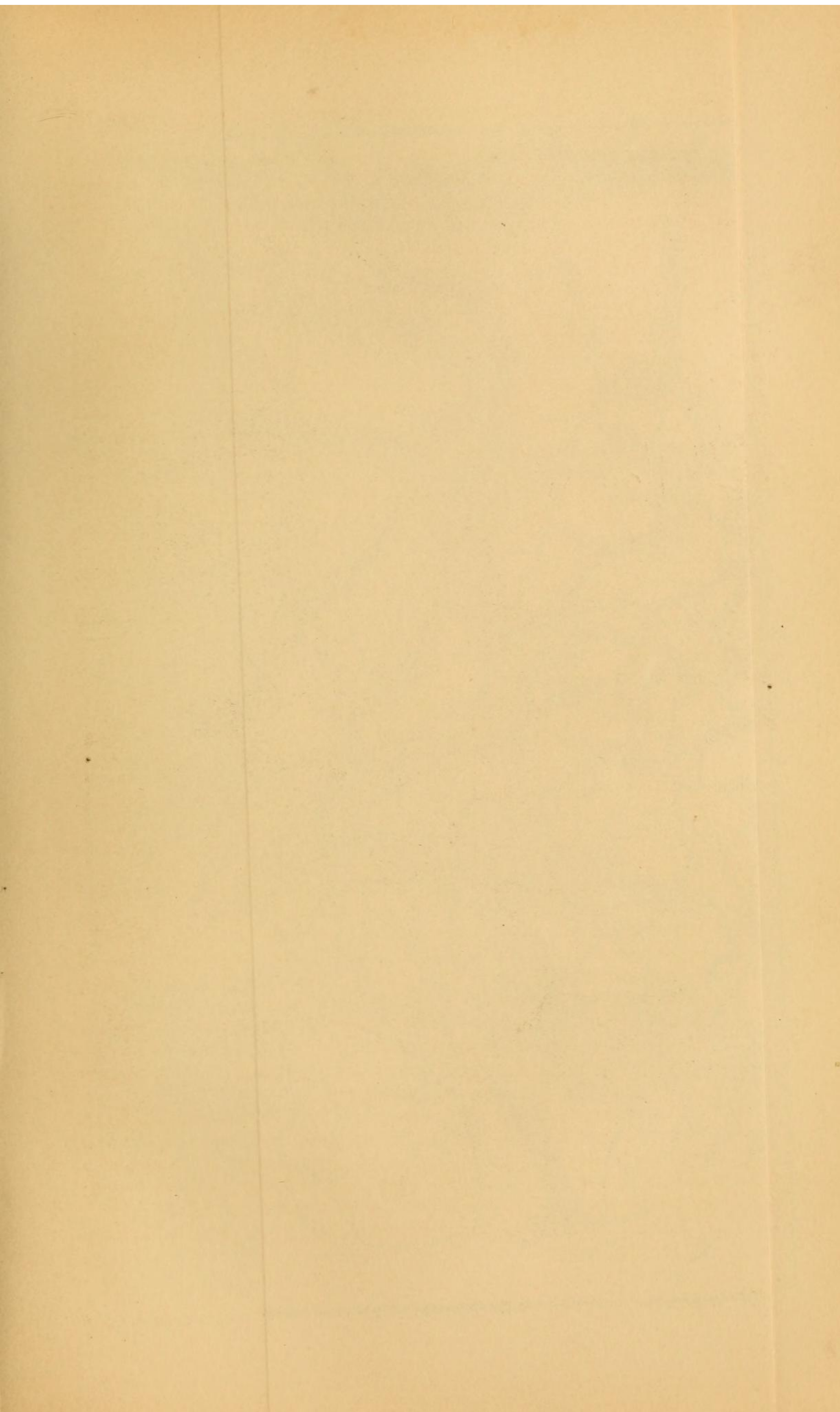
curving upwards, armed with a double row of conical, slightly curved spines, nearly $\frac{1}{8}$ inch in length, and extending back to the cervical furrow, thence in a single row down the median line of the carapace to the posterior margin. Cervical furrow broad and strong, terminating in a smooth rounded sinus near the antero-lateral margin; the branchial region divided from the gastric by two slender parallel furrows, which, passing obliquely down the sides of the carapace, unite with the cervical furrow near the margin. The posterior and lateral borders of the carapace are raised, and have a sulcus within the margin; the surface of the posterior portion is scabrous, of the anterior portion finely punctate, the antero-lateral portion being covered with minute irregular spines. Two lines of minute spines extend forward from the cervical furrow obliquely on each side of the median furrow towards the rostrum, and another line extends backwards and upwards from the posterior margin of the same furrow, on either side, obliquely to the median line. Eye globular (?), and, from the size of the orbit, probably large. Outer pair of antennæ large, multi-articulate, 4 to 5 inches long; three basal joints large and armed with spines. Inner antennæ smaller, multi-articulate; basal joints crushed, and insufficient for description.

The legs forming the first pair are symmetrical, and equal in length to the entire body; they are scabrous, and armed with several rows of smooth, strongly curved spines; extremities monodactyle, the fixed ramus of the penultimate joint being only represented by a large spine one-fourth the length of the ultimate joint, which is curved and pointed. The limbs of the second pair are also armed with spines along their margin; the penultimate joint is flat and very broad at the distal extremity, the ultimate joint small and pointed. Third and fourth pairs like the second, but nearly smooth. The fifth pair is much smaller than the rest, and only very imperfectly preserved. Abdomen rather longer than the cephalothorax. The epimeral portion of the first segment *much less* produced, and of the second segment *much more* produced, than in those succeeding; all the segments minutely punctate at, and spinous upon, their lateral margins. Each segment deeply curved in front to receive a small polished ball-articulation attached to the posterior margin of each joint of the abdomen. The tail-lobes are broad, the outer lamina having a crescent-shaped division near its extremity, bordered by 2 or 3 spines; the inner lamina is smooth, and the central lobe slightly punctate, with 2 or 3 small spines along its margin.

False abdominal legs apparently fitted for natation; but two only are preserved, and those very imperfectly.

Dimensions.—Length of the carapace $3\frac{1}{8}$ inches; greatest depth $1\frac{5}{8}$ in. (in profile). Length of the rostrum $\frac{5}{8}$ in. Depth of the first abdominal segment $\frac{3}{4}$ in., of the second $\frac{7}{8}$ in. Length of the abdomen and tail-lobes $3\frac{3}{4}$ in. Length of the outer antennæ 4–5 in. Length of the fore-arm $2\frac{3}{8}$ in., wrist $\frac{3}{4}$ in., hand 2 in., finger $1\frac{5}{8}$ in.

Length of a detached hand and arm:—arm $2\frac{1}{2}$ in., wrist $\frac{3}{4}$ in., hand $2\frac{1}{4}$ in., finger $2\frac{1}{8}$ in.



P.S. 27th June, 1863.—Since the foregoing communication was made to the Geological Society, I have received a copy of Dr. A. Oppel's 'Palæontologische Mittheilungen,' Stuttgart, 1862.

The first part of this most valuable work is devoted to a description of Macrurous Crustaceans of the Jurassic formations of Germany, &c., and is illustrated by 38 excellent plates. The author has, I observe, adopted Germar's generic name of *Mecocheirus* in his descriptions of the Solenhofen *Crustacea*.

Although Dr. Oppel has added more than 50 new species to the list of Jurassic *Crustacea*, none of them agree, even generically, with that just described from the Lias of Lyme Regis.—H. W.

EXPLANATION OF PLATE XI.

Scapheus ancylochelis, H. Woodw., four-fifths the natural size.

APRIL 1, 1863.

S. N. Carvalho, Jun., Esq., 6 Aberdeen Park, Highbury Grove, N., and William Edwards Wood, Esq., Tamworth Castle, Tamworth, were elected Fellows.

The Rev. Dr. O. Heer, Professor of Botany in the University of Zurich; Sign. P. Savi, Professor of Geology in the University of Pisa; Sign. G. Ponzi, Professor of Comparative Anatomy and Physiology in the University of Rome; Dr. J. Leidy, Professor of Anatomy in the University of Pennsylvania; Il Marchese Pareto, of Genoa; and Professor A. Daubrée, of the Jardin des Plantes, Paris, were elected Foreign Correspondents.

The following communication was read:—

On RECENT CHANGES in the DELTA of the GANGES.

By JAMES FERGUSSON, Esq., F.R.S.

[Communicated by the President.]

[PLATE XII.]

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