

form it is always to be written with a small initial letter: e.g. *Antillarum*, *Galliæ*, *lybicus*, *ægyptiacus*, etc.”

It is then strange, but true, that the name *Merocrinus Salopiæ* is not only in conformity with Latin usage, but also with the rules of zoologists. As for euphony, tastes differ, especially in different countries. Mr. Jukes-Browne modestly shrinks from the Latinized genitive of “Bell”; some, however, find more pungent offence in the adjectival form of my critic’s own name, even when screened by a “jukes” or similar useful prefix. Still, these objections are purely provincial; they would not be felt by a German or Japanese; they have no place in orthography or zoology. And is it not absurd of Mr. Jukes-Browne and myself to be discussing a mode of nomenclature that he has taken a vow never to employ, a vow which I hope we shall both live long to keep?

NATURAL HISTORY MUSEUM, S.W.
March 4th, 1896.

F. A. BATHER.

OBITUARY.

CHARLES WACHSMUTH.

BORN SEPTEMBER 13TH, 1829.

DIED FEBRUARY 7TH, 1896.

THE Museum of Comparative Zoology at Harvard is about to publish “A Monograph of the Crinoidea Camerata of North America,” in two volumes, consisting of 800 pages and 83 plates. This great work is the result of some 40 years’ labour on the part of Charles Wachsmuth, of Burlington, Iowa, assisted for about half that period by Frank Springer. Those who have followed the writings of these palæontologists, and who are looking forward to this climax of their efforts, will deeply regret to hear of the death of the senior author, which has deprived him of the congratulations of his colleagues and the joy of an aspiration fulfilled.

Charles Wachsmuth was the only son of Christian Wachsmuth, an eminent lawyer of Hanover, Germany, in which city he was born and educated. He abandoned the profession of the law on account of weak health, and early turned his attention to commerce.

In 1852 Charles Wachsmuth went to New York as an agent for a Hamburg shipping house in the interest of German emigration. Here he remained for two years, but as the climate did not agree with him, he removed to Burlington, Iowa, where he finally settled, having married, in 1856, Miss Bernandina Lorenz. Up to this time Wachsmuth had paid no attention to science, but being still of weak health, he was advised by his physician to spend as much time as possible in the open air, and to take to fossil-collecting. The magnificent remains contained in the Burlington Limestone, especially the fossil crinoids, soon aroused in him the enthusiasm that ceased only with death. In less than three years he had made a collection whose fame extended into other States. Excited by the report of Jules Marcou, in 1864 Louis Agassiz visited Burlington, and struck by the intelligence of Wachsmuth invited him to Cambridge. Thither he went, in 1865, on his way to Europe. This journey was used by

him to good purpose in collecting European fossils, and in studying the crinoids in the principal museums. Finally he visited the British Museum, with one of his magnificent Burlington specimens in either pocket; these were promptly purchased. Fired by what he had seen, Wachsmuth, on his return to Burlington, determined to devote the rest of his life to the study of the crinoids. His want of scientific training was not altogether a disadvantage, since he came to the subject unhampered by the preposterous notions of crinoid, or at least fossil crinoid, morphology that obtained among the older writers. W. H. Niles, a student of Agassiz, had been led to believe, from the published observations of Dr. C. A. White, and from notes given him by Wachsmuth, that a careful study of the distribution of the crinoidal remains at Burlington would be rewarded with interesting results. He came to Burlington and, as he says, "found Mr. Wachsmuth acquainted with many important facts in this connection which could be reached only by a long experience in collecting these fossils, by an intimate acquaintance with the species, and a series of most careful observations." The result of his visit was the joint paper published in the *American Journal of Science* in 1866, proposing a division of the Burlington Limestone into two horizons, based on the restriction of the various species of Crinoids to one or other of these two. The paper was also of importance as pointing out the gradual progression of crinoidal life and structure from the Lower Burlington to the Keokuk Limestone, an idea afterwards elaborated by Wachsmuth and Springer in their remarkable paper on "Transition Forms in Crinoids," 1878. F. B. Meek, who was preparing the fifth volume of the *Illinois Survey*, also came to study Wachsmuth's collection, and in that volume are several remarkable notes on the structure and habits of Palæozoic Crinoidea, based upon "some unique and exceedingly interesting specimens" in the collection of Wachsmuth. The authors, Meek and Worthen, remark: "We express our thanks to Mr. Wachsmuth for the zeal, industry, skill, and intelligence he has brought to bear, in collecting and preparing for study, such an unrivalled series of the beautiful fossil Crinoidea of this wonderfully rich locality. Some idea of the extent of his collection . . . may be formed, when we state that of the single family Actinocrinidæ alone, after making due allowance for probable synonyms, he must have specimens of near 150 species, or perhaps more, and many of them showing the body, arms, and column. It is also due to Mr. Wachsmuth that we should state here that he is not a mere collector only, but that he understands what he collects, and knows just what to collect, as well as how to collect."

Later on Agassiz paid a second visit to Burlington, and for the sum of 6000 dollars induced Wachsmuth to part with his magnificent collection, and also to come to Cambridge to arrange the specimens for exhibition, and to study them and publish the results. After this Wachsmuth made a second collection, by no means so extensive as the first, but still containing many splendid specimens, which he brought with him on his second visit to Europe in 1874, and sold

to the British Museum for £80. The 203 specimens thus obtained, together with 75 specimens received through exchange in 1888, contain many of the finest examples in the Museum, and some which are in their way unique, notably the splendid calyx of *Megistocrinus Evansi*, measuring 8 cm. ($3\frac{2}{8}$ inches) in diameter.

Again Wachsmuth settled down in Burlington, eager to make a fresh collection and continue his studies. He was so fortunate as to fall in with Mr. Frank Springer, then a young lawyer at Burlington, with whose assistance he again gathered together one of the finest collections of crinoids in the world, to receive which he built a special fire-proof museum at the back of his home in Marietta Street. From this time onwards there have appeared a series of important papers, which, with the exception of "Notes on the Internal and External Structure of Palæozoic Crinoids" (*American Journal of Science*, 1877) have been written by the two friends. Next to the paper just mentioned, which was an epoch-making one in this branch of science, the most valuable is the "Revision of the Palæocrinoidea," published by the Philadelphia Academy. To deal in detail with the differences in our knowledge of these animals that have been due to Wachsmuth and Springer, is impossible on the present occasion, and readers may be referred to the *GEOLOGICAL MAGAZINE*, Decade III, Vol. VIII, pp. 219–224, for one of the very few accounts of their work that have appeared in this country. We may, however, again point out that these authors were very different from the usual race of species-mongering collectors that flourish too plentifully in similar rich localities. Their aim was not so much to add to the already overlaid lists of species as, on the one hand, to sift, summarize, and correct the work of their predecessors, and, on the other hand, to throw what light they could upon the structure and classification of the Crinoidea. It is not the least praise that can be accorded them to say that many of the suggestive views which they have at various times put forward they have at other times overthrown by their own more careful, more extended observations. There are those who jeer at the inconsistencies of science, forgetful of the wise saying that it is only fools who never make mistakes. In searching out his knowledge Wachsmuth was possessed of indefatigable patience; and in maintaining what he held to be the truth, he displayed a vigorous enthusiasm. At the same time he was always ready to discuss objections, and to yield with open mind to more powerful arguments. His generosity to his fellow-workers, and especially to those in England, must not pass unnoticed here. I could speak myself of his kindness, both in correspondence and in person, when I had the pleasure of staying with him and examining his marvellous collection at Burlington; but it is perhaps more fitting that I should quote from Etheridge and Carpenter's preface to their "Catalogue of the Blastoidea in the British Museum," when they say—"Our chief difficulty, the want of adequate material, was soon and simply solved; for Mr. Charles Wachsmuth generously offered to place at our disposal a selected series from his fine collection of American Blastoids. Though it was originally lent

for six months only, the owner's liberality has enabled it to remain in our hands for over five years. Nothing that we can say can express better than this statement the extent of our indebtedness to Mr. Wachsmuth's generosity, which prompted him to expose a valuable collection to a double journey across the Atlantic and a prolonged detention in this country, in the hope of promoting scientific knowledge. Besides providing us with material, Mr. Wachsmuth has also been kind enough to keep us informed from time to time of the progress of his own researches. We tender him our most sincere thanks for the very free use which he has allowed us to make of his unpublished observations." F. A. B.

MISCELLANEOUS.

PALÆONTOGRAPHICAL SOCIETY.

THIS Society, which was established in the year 1847 for the purpose of figuring and describing the fossils of the British Isles, issued last year its 49th volume, and the 50th volume may be expected early this year. The monographs in course of publication include those of the Gasteropoda of the Inferior Oolite, by Mr. Huddlestone; the Ammonites of the same formation, by Mr. S. S. Buckman; certain Lamellibranchs of the Coal-measures, by Dr. Wheelton Hind; the Devonian Fauna of the South of England, by the Rev. G. F. Whidborne; the Crag Foraminifera, by Prof. T. Rupert Jones; and the Fossil Sponges, by Dr. G. J. Hinde.

Although so much has been accomplished, there yet remains a very large amount of work to be done. Of this future work the more important will be the description and illustration of the Jurassic and Cretaceous Fishes (certain Ganoids excepted); the Jurassic and Cretaceous Lamellibranchs (with the exception of those of the Great Oolite and the *Trigoniæ*); the Gasteropods of the Lias, Middle and Upper Oolites, and Cretaceous Rocks; the Lower Carboniferous, Silurian, and older Mollusca; the Polyzoa of all formations (except the Crag); the Mesozoic Crustacea; the Palæozoic Echinoderms (except the Devonian); and the Insects of all formations.

Unfortunately, Palæontology is not an exact science, and with the multiplication of species nowadays it is difficult to foretell the time when the Palæontographical Society will have terminated its valuable labours.

It has now reached the point of preparing to issue its fiftieth annual volume, and it seems highly desirable that public attention should be drawn to the important work carried on by this Society, in order to attract new members. We can imagine no better way to effect this object than by sending out a circular announcing the *Jubilee* of the Society this year, and inviting all members to celebrate the occasion by a public meeting and dinner, at which all old "pals" should meet once more. The custom was to hold an annual dinner on the anniversary day, and we hope this excellent and time-honoured practice of the Palæontographical Society will now be revived.