The two known spicules on which A. rusticum was based apparently lack proximal and distal rays, and may well be from a Gondekia, although they could equally well represent surficial spicules of a species of Astraeospongium. Description of species based on isolated spicules should be discontinued, although occurrences of such spicules should be noted because they commonly are the only evidence in many assemblages of the presence of heteractinid sponges.

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REFERENCES

- BOWERBANK, J. S. 1864. A monograph of the British Spongiadae. Vol. 1, Ray Society, London, 290 p.
- Coley, T. B. 1954. Stratigraphic distribution and correlation of some Middle Devonian Ostracoda. Journal of Paleontology, 28:452-464.
- FINKS, R. M. 1970. The evolution and ecologic history of sponges during Paleozoic times, p. 3-22. *In* W. G. Fry (ed.), The Biology of the Porifera. Symposia of the Zoological Society of London, 25, Academic Press, London.
- KRUSE, P. D. 1987. Further Australian Cambrian sphinctozoans. Geological Magazine, 124:543-553.
- —. 1990. Cambrian paleontology of the Daly Basin. Northern Territory Geological Survey (Australia) Report 7, 58 p.
- LANDING, E. C., AND C. E. Brett. 1987. Trace fossils and regional significance of a Middle Devonian (Givetian) disconformity in south-eastern Ontario. Journal of Paleontology, 61:205–230.
- LAUBENFELS, M. W. DE. 1955. Porifera, p. E21-E112. In R. C. Moore (ed.), Treatise on Invertebrate Paleontology, Pt. E. Geological Society of America and University of Kansas Press, Lawrence.
- MILLER, S. A. 1889. North American Geology and Paleontology. Cincinnati (published by the author), 664 p.

- MITCHELL, S. W. 1967. Stratigraphy of the Silica Formation of Ohio and the Hungry Hollow Formation of Ontario, with paleogeographic interpretations. Papers of the Michigan Academy of Science, Arts and Letters, 52:175-186.
- Poole, W. H., S. H. WILLIAMS, AND D. G. KELLY. 1970. Geology of southeastern Canada, p. 229–304. *In R. J. W. Douglas (ed.)*, Geology and Economic Minerals of Canada. Geological Survey of Canada, Economic Geology Report No. 1.
- REIMANN, I. G. 1945. New Middle Devonian octactinellids. Paleontological Contributions, Buffalo Society Natural History Bulletin, 19(2): 16–21.
- RICHARDSON, E. S., Jr. 1950. A Middle Devonian octactinellid sponge from New York. Fieldiana: Geology, 10:79–88.
- RICKARD, L. V. 1984. Correlation of the subsurface Lower and Middle Devonian of the Lake Erie region. Geological Society of America Bulletin, 95:814–828.
- RIETSCHEL, S. 1968. Die Octactinellida and ihnen verwandte paläozoische Kalkschwämme (Porifera, Calcarea). Paläontologische Zeitschrift, 42:13-32.
- RIGBY, J. K. 1967. A new polyactinal sponge from the Antelope Valley Formation (Ordovician) in the Toquima Range, Nevada. Journal of Paleontology, 41:511-515.
- —. 1983. Heteractinida, p. 70–89. In T. W. Broadhead (ed.), Sponges and Spongiomorphs, Notes for a Short Course. University of Tennessee Department of Geological Sciences, Studies in Geology, 7.
- —. 1986. Sponges of the Burgess Shale (Middle Cambrian), British Columbia. Palaeontographica Canadiana, Monograph 2, 105 p.
- —. 1990. Evolution of Paleozoic heteractinid calcareous sponges and demosponges—patterns and records. Proceedings, Conference on Fossil and Recent Sponges, Berlin, 1988, Springer Verlag, Berlin.
- —, AND M. W. NITECKI. 1975. An unusually well preserved heteractinid sponge from the Pennsylvanian of Illinois and a possible classification and evolutionary scheme for the Heteractinida. Journal of Paleontology, 49:329–339.
- ROEMER, C. F. 1848. Die silurische Fauna des westlichen Tennessee. Eine palaeontologische Monographie. Breslau, 100 p.
- SANFORD, B. V. 1968. Devonian of Ontario and Michigan. Proceedings of the International Symposium on the Devonian System, Calgary, 1967, Alberta Society of Petroleum Geologists, 1:973-999.
- WALCOTT, C. D. 1920. Middle Cambrian Spongiae, Cambrian geology and paleontology. Smithsonian Miscellaneous Collections, 67(6):261–364

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