

Search for, and study of, Paleozoic impact ejecta: progress
made during the past year.

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When I reported at this time last year, nodule-like objects which I believe to be impact bombs had been found in Middle Ordovician rocks of southeastern Wisconsin and northern Illinois. In northern Illinois, rock fragments containing oolith-like spherules, which I believe to be solidified impact droplets, and numerous large bubble-holes, had been found at the same stratigraphic level. Samples of drill-cuttings had been obtained from the Illinois Geological Survey in the hope that similar spherules may be recognizable in them.

The spherule-bearing rock is described in an article recently published in *Meteoritics*. A (several-times-revised) manuscript on the nodules is nearing completion and will be submitted for publication to the *Journal of Geology*. There has been no opportunity for work on the drill-cuttings.

Also in last year's report, mention was made of the discovery of bomb-type nodules in Lower Ordovician rocks of southeastern Wisconsin. At that time they were known only from two quarry exposures. They have since been found, at the same stratigraphic level, in other quarries.

During the past year, bomb-type nodules associated with droplet-type spherules have been found in Lower Ordovician rocks of central Pennsylvania. Droplet-type spherules have been found to be associated with the bomb-type nodules previously discovered in Lower and Middle Ordovician rocks

of southeastern Wisconsin. Spherule-bearing rock containing large bubble holes has been found in Lower Ordovician rocks of southwestern Wisconsin. Thin-section and other laboratory work on samples from these finds is just getting under way.

In my opinion, the discoveries noted above suffice to show that impact ejecta are widespread in marine sediments of Ordovician age and are likely to be widespread also in marine sediments of other ages. Unfortunately there is little indication so far that they have been accepted as valid by the concerned scientific community. This is evident from the negative reviews my manuscripts have generally received when submitted for publication, and, more recently, by the discontinuation of funding by NASA. The only way to correct this situation, as I see it, is to keep on working with or without funding and to report at meetings and publish in journals whenever possible.