Certain aspects of Martin B. Cassidy's paper (1968) require comment.

1. In essence it appears that there is a difference in the physical appearance of the Excello Shale north and south of the Kansas-Oklahoma border. This difference is based only on visual observation. In particular it seems peculiar that no attempt was made to quantify the difference between the two major facies whereas considerable analytic effort was devoted to one of these facies, in which less compositional variation would be expected. The reader is likely to receive the false impression that the analytical data, a major part of the paper, document and support a major conclusion, the existence of two distinct facies.

2. A carbonate reef just north of the Kansas-Oklahoma border supposedly controlled the distribution of the two facies: “The reef acted as a filter for the organic debris trapping the carbonaceous material north of the reef [to form the carbonaceous facies] and letting only the organic colloids continue to the south, where they flocculated and settled with marine organisms to form the bituminous shale” (p. 310)

The reef, which presumably controlled black-shale facies distribution across a major part of the Mid-Continent for a brief interval of time, was “at least 8 ft thick.” It seems inconceivable that such a small feature could have exerted such widespread influence. Furthermore, to be an effective barrier to sediment transport, such a reef would need to be laterally continuous. This reef is documented inadequately, and in particular no information is given regarding its three-dimensional character. Furthermore, very detailed mapping of the limestone underlying the black shale would be necessary to support the importance of a single 8-ft feature. Many such small features could exist undetected in the study area.

I feel that the significance attributed to this reef by the author is not warranted by the evidence presented.

3. Kaolinite commonly is used as an indicator of acid conditions on the basis of the experimental synthesis of kaolinite (de Kimpe et al., 1961) and probably on the interpretation of kaolinite genesis in soils. However, I have found pure kaolinite as a fracture and void filling in phosphatic concretions (as does Cassidy), siderite concretions, and limestone. The limestone occurrences also are described by Schroeder and Hayes (1967). Such occurrences obviously are authigenic and it is difficult to see how they could have formed under anything but alkaline conditions. Thus the use of kaolinite as an indicator of acid conditions in sedimentary rocks needs to be reevaluated.

**References Cited**

