Biological Laboratory of National Laboratory of Mental Health, Bethesda, Maryland 20805

Ralph U. Esposito Laboratory of Psychology and Psychopathology, National Institute of Mental Health Thomas F. Seeger Biological Psychiatry Branch, National Institute of Mental Health Alison M. Crane Laboratory of Cerebral Metabolism, National Institute of Mental Health

AGU PERT Biological Psychiatry Branch, National Institute of Mental Health Louis Sokoloff Laboratory of Cerebral Metabolism, National Institute of Mental Health

References and Notes


8. The ICSS screening and training were conducted with the same Plexiglas box containing a single lever in one wall. Stimulation was delivered by a constant current stimulator (Neural-Colorado model 7) and consisted of at least length and width recording of rectangular waves with patterns and frequencies of 0.2-msec positive and negative pulses and 0.2-msec delay between pulses, delivered at 10 Hz in 400-msec trains. All trains were performed continuously for 3 to 5 days until responding stabilized. After establishing preferred rates of ICSS, constant current stimulation (Neural-Colorado model 7) was used to present response to the lever from the stimulator. During the experimental procedure, brain stimulation delivered to the EAS rats was randomly presented at rates at which the animals had previously stimulated themselves.

9. Optical density measurements were made with a manual densitometer (Sargent-Welch) or means of a computerized image-processing system.


14. We thank K. Pettigrew for statistical advice and J. J. Pietrosilco for technical skills.

22 December 1983; accepted 21 February 1984

Multiple Microtektite Horizons in Upper Eocene Marine Sediments?

Keller et al. recently suggested (1) that there are several middle Eocene to middle Oligocene microtektite horizons and implied that these horizons indicate separate tectite events. Although there is no priori reason why there could not be multiple tectite events during this period, Keller et al. do not provide any descriptive, petrographic, or compositional data to support their identification of microtektites from previously unreported stratigraphic layers. Furthermore, the lack of data on abundance versus depth and of compositional data does not allow the reader to decide if the microtektite occurrences are due to several events, as Keller et al. claim, or merely to one event with scattered younger occurrences attributable to reworking.

For example, Keller et al. show (1) three microtektite layers at site 292 (cores 29, 36, and 38). I have examined cores 36 and 38. The microtektites in core 36 are small (<15 µm in diameter), rare, and scattered over most of the core. In core 38 the microtektites are generally larger (up to 1 mm in diameter), are more abundant, and occur in a well-defined layer. The microtektites from core 36 are Petrographically and compositionally similar to those in core 38; thus the microtektites in core 36 are probably from the same event as those found in core 38, but they have been reworked into younger sediment. I have found similar results for site 94, cores 14 and 15, where Keller et al. also claim to have found two different events. Keller et al. further claim (1) to have found four layers of microtektites at site 242 (cores 10, 15, 18, and 19). I have searched for microtektites in 10-cm2 samples taken at 20-cm intervals through cores 18 and 19 and did not find a single microtektite. If microtektites are present in these two cores, they must be rare and may therefore be reworked.

Keller et al. also conclude (1) that no faunal extinctions can be correlated with any of the late Eocene to middle Oligocene microtektite layers. However, it has been shown that the last abundant appearance of several species of Radiolaria (for example, Thysanocyrtis bromia, T. tetractantha, T. finals, and Calocyclas turris) is closely associated with a late Eocene microtektite layer at ten sites ranging from the Caribbean Sea to the Indian Ocean (2). Keller et al. suggest that the coincidence between the extinctions and the microtektite layer is due to a hiatus. Indeed, they suggest that most of the late Eocene to middle Oligocene microtektite occurrences are associated with a hiatus or dissolution zone. However, they discuss the evidence for a hiatus at only two of the sites and in both cases the evidence is at best ambiguous; the exact relation between the "hiatus" and the microtektite layer is not defined.

Another puzzling aspect of the report of Keller et al. (1) is their discussion of the age of the North American tektite-strewn field, which they say is 37.5 to 38.0 million years. They fail to mention the potassium-argon and 40Ar/39Ar dating for the North American tektites, which confirm an age of 34 to 35 million years.

B. P. Glass
Geology Department, University of Delaware, Newark 19716

References


29 July 1983; accepted 9 November 1983

Glass comments that the two late Eocene and middle Oligocene microtektite layers represent a single meteorite impact (this conclusion is based on petrographic and chemical analyses) and that the multiple layers are due to reworking.
Multiple Microtektite Horizons in Upper Eocene Marine Sediments?
B. P. GLASS

Science 224 (4646), 309.
DOI: 10.1126/science.224.4646.309

Use of this article is subject to the Terms of Service