Is another extinction threat hanging over us in the depths of the universe? *(Hale Observatories)*

Les profondeurs de l'univers recèlent-elles une autre menace d'extinction pour l'humanité? *(Observatoire Hale)*

berg Institute of Astrophysics. The meeting was convened to review the evidence for a new theory propounded by a team from the University of California. Luis and Walter Alvarez, investigating geologic records in Italy, discovered abnormally high levels of iridium, a trace element in crustal rocks, in a location geologically coincident with the disappearance of the dinosaurs. The supply of iridium granted the earth during the formation of the solar system is believed to have sunk below the cooling crustal rocks. Fresh stocks of this noble metal must come from space, borne to earth by dust, meteorites or other encountered planetisimals. According to the Alvarez group, a 10 km-wide asteroid struck the earth, vaporizing in the process and creating a shield of dust that halted photosynthesis, scything the food chain supporting ponderous lizards and their neighbors.

The Berkeley team's thesis has brought an almost audible sigh of relief from paleontologists who subscribe to the "catastrophe" school of extinction. Only a few years ago, a widely considered theory suggested the earth had been dosed with high levels of radiation from a nearby supernova, eliminating a wide range of lifeforms through radiation effects or climatic upheaval. (See *Science Dimension*, 1978, No. 3.) Supernova possibilities were discussed at the first extinction symposium held in 1976. Supernovae, however, are messy affairs, filling space with the offal of their passing. No evidence of a nearby stellar demise has been detected in space or earth's records. An asteroid offers solace to those perplexed by the simultaneous nature of the extinctions.

The new theory is keyed to rock formations well known to paleontologists. Geologists identify rocks of the Mesozoic Era (220 to 65 million years ago) and find the fossil patterns interrupted sharply. Biologists separate that era into periods of life form types whose termination at the end of the Cretaceous is simultaneous with the interruption of the stony register. After a brief hiatus, known as the K-T Boundary, typified by a layer of clay containing few fossils, the Tertiary period rocks can be observed. It is the Boundary clay which interests the symposium participants. Its origins and significance are the subject of dispute among geologists, biologists, and now, astronomers. Studies have been made of land-based sites of this Boundary for years, and now deep undersea core samples are bringing to light even more information about it.

Among the more significant of the many investigations was a highly detailed view of the K-T Boundary in a Spanish site by Dutch geologist Jan Smit. "We traced mineral levels and biological indicators from deep in the Cretaceous through the Boundary up into the Tertiary rocks," he relates. "At this site the K-T clay is about 10 cm thick. At the bottom one millimetre level we found a sudden sharp increase in platinum group metals such as iridium, osmium and chromium. There was also a startling abundance of arsenic, as well as numerous glassy spherules typical of either meteoritic or volcanic activity. None of the pre-Boundary fossils we identified 'crossed over' into the Tertiary rocks, but nu-