the tubes of nonsterilized soil. Similar volatilization of γ-BHC has been reported (*10*).

More rapid loss of the insecticide from the Luisiana clay was found following a second application of γ-BHC (compare curves *A* and *B*, Fig. 1). These results suggest the establishment, during the 55 days after the first application, of a microbial population active in γ-BHC degradation. This microbial population was able to degrade γ-BHC (without any apparent lag) following a second application of γ-BHC. We are seeking unequivocal proof of microbial degradation of γ-BHC by the isolation of microorganisms capable of degrading this insecticide. Previous observations (*11*) based on the inhibition by γ-BHC of small crustaceans in submerged soils also revealed reductions in duration of persistence when repeated applications of the insecticide were made. The time taken for recolonization of the floodwater by the crustaceans was used to indicate the persistence of γ-BHC. The more specific chemical assay that we used suggested the same trend. The question now arises whether γ-BHC should be considered a highly recalcitrant molecule.

To control the rice stem borer in the field effectively, the insecticide should be applied in two doses to give a total application of 5 kg of γ-BHC per hectare (*1*). While detectable amounts of γ-BHC were found after 60 and 90 days in the Luisiana clay and the Maahas clay respectively, the amounts that we used were approximately three times greater than those recommended for field application. Therefore, unusually prolonged persistence of the insecticide in the flooded soils studied seems unlikely.

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7. The two soils used (Maahas clay and a latosolic soil) were from Luzon, Philippines, and had the following characteristics: the Maahas clay (*p*H 6.6; organic matter, 2.0 percent; total N, 0.14 percent) and the latosolic soil or Luisiana clay (*p*H 4.7; organic matter, 3.2 percent; total N, 0.21 percent).
8. The γ-BHC used was analyzed by gas chromatography, and was free of any traces of the other isomers of benzene hexachloride.
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Fossil Occurrence of Murine Rodent (Nesokia indica) in the Sudan

Abstract. *A specimen of the murid rodent* Nesokia indica *has been recovered from a late Paleolithic archeological site in the Sudan. This is a range 1200 km south of the site of any known occurrences, and it indicates a different environment near the Nile River than that which exists at the present time. The late Paleolithic water table is inferred to have been more stable, allowing for permanent moist soil.*

During the course of archeological excavations in the Sudanese portion of the Aswan Dam pool area, several sites were found to contain permineralized bone. One interesting find was the broken jaws of the murid rodent *Nesokia indica*. The specimen (*1*) consists of a left jaw fragment with M_{1-3} and incisor root, and a right jaw fragment with M_1 and incisor root. They were found together (hence, probably from the same individual), at the Sudanese Antiquities Service site number 6B28 (upper Paleolithic age), Dabarosa West, Northern Province, Republic of Sudan, 1 km west of the Nile River, and 1½ km west of Wadi Halfa.

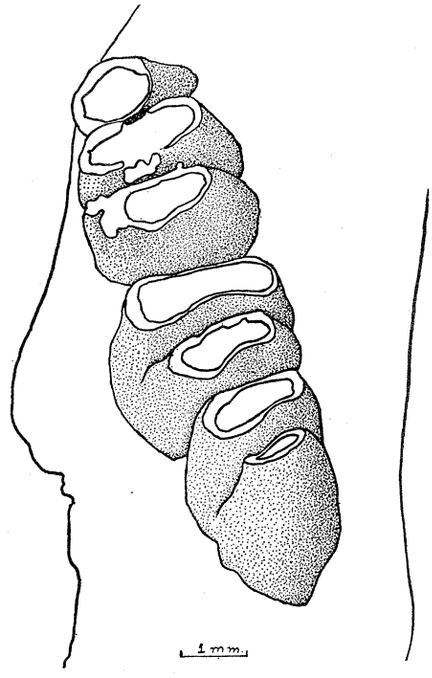

Fig. 1. Crown view of *Nesokia indica* (UCM 27413 A). Left M_{1-3}, from Dabarosa West, Northern Province, Sudan.

This record of *Nesokia indica* from northern Sudan is interesting for several reasons. *Nesokia* is found today in Western Asia and Asia Minor (*2*) but in Africa it is restricted to the Nile Delta and the Fayum marshes. *Nesokia* inhabits the banks of irrigation canals and distributaries of the Nile Delta by burrowing into the soft mud (*3*). Although irrigation is common in the narrow band of arable land on both sides of the Nile in Nubia, the irrigation is seasonal and there are periods when the soil is dry and hard. The same is true of those areas not under cultivation; in these cases, control by the seasonal fluctuation of the water level of the Nile is more obvious. *Nesokia* inhabits areas where the ground is wet the year round. This gives us an indication of what the ecology was like during late Paleolithic time in Nubia. Presumably, if the Nile went through seasonal fluctuations as it does today, these annual changes in water level had little effect on the area near the river. Such a relatively stable water table would imply dense vegetation near the river, with concomitant increase in the fauna dependent on it. Such an area would be of significance to a human population and might allow a permanent campsite or sites near an abundant food supply.

If these inferences are correct, the effect of this environment on the local inhabitants must have been significant; a larger population could have survived for as long as this condition continued. Possibly, similar conditions existed for some distance north and south of the Wadi Halfa area.

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