7. A. E. Wood, *J. Paleontol.* **23**, 556 (1949); L. Radinsky, *Yale Peabody Museum Bull.* **17** (1963).
8. The Carnegie Museum's portion of this study is supported in part by NSF grant GB 1266; the University of Colorado Council on Research and Creative Work supported the University Museum's field work and illustrations. We thank M. C. McKenna of the American Museum of Natural History for advice and criticism.

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Radiocarbon Dating of a Late Paleolithic Culture from Egypt

Abstract. *Two radiocarbon dates of about 12,000 B.C. for a new prehistoric culture from a stratified site at Kom Ombo, Upper Egypt, throw light on a deposition phase of the late Pleistocene Nile. The dates reveal that the associated blade industry is coeval with at least the later part of the Upper Paleolithic in Europe and Southwestern Asia.*

Evidence for the existence of Paleolithic man in Egypt has been known for almost a century, and during that time large numbers of surface collections of artifacts have been made and a relatively small number of sites excavated. To my knowledge, however, no radiocarbon date for a Paleolithic culture has yet been published, although some dates have been obtained from Dynastic, Predynastic, and Neolithic materials (*1*). This lack is all the more marked when contrasted with the situation in other parts of North Africa (particularly Libya) and in southwestern Asia where a number of Paleolithic dates have been obtained in the past decade. It reflects not only the infrequency of sealed sites such as caves or rock-shelters but also the near cessation of prehistoric research in Egypt since the second World War.

It seems worthwhile, therefore, to record two radiocarbon dates recently received in connection with a newly discovered culture of the late Paleolithic in Upper Egypt. During 1962 to 1963 the National Museum of Canada sponsored a prehistoric archeological expedition to Egypt to take part in the current international Aswan Reservoir salvage program. The University of Toronto also collaborated in this research, and I served as director of the expedition. Since a large area of desert was being reclaimed at Kom Ombo, about 45 km north of Aswan, in order to resettle the larger part of the population being displaced from Egyptian Nubia by the rising waters behind the new High Dam, the Canadian expedition concentrated its efforts here where late Paleolithic sites had been reported many years ago. (*2*).

A large number of sites was found in and on the silts deposited by the late Pleistocene Nile, and a series of late Paleolithic cultures not hitherto reported from the Nile Valley was identified. One of these was recovered from a stratified occupation site buried in the silts about 3 km east of the present Nile near Gebel Silsilah. Accompanying large quantities of faunal remains were flint artifacts characterized mainly by retouched blades and bladelets and by occasional burins and scrapers. The nuclei are usually long and prismatic with plain oblique striking platforms. No geometric microliths or microburins were found in this industry, and there was no evidence of pottery, polished stone, or food production. The name *Sebekian* (after Sebek, one of the patron deities of Kom Ombo in Pharaonic times) has been given to this new culture, for which a full report is being prepared.

From two specimens of charcoal recovered near hearth areas in two separate parts of the site the following ages have been calculated (*3*):

I-1291	14,240 ± 370 ago (12,290 B.C.)
I-1292	14,100 ± 450 ago (12,150 B.C.)

These ages are not only highly consistent with each other but also agree well with local geological evidence. The results of further samples now being run from this and other sites at Kom Ombo will shortly be made available. It is hoped that studies now under way on the faunal materials, soils, and possible paleobotanical remains from these sites will help document the climate and ecology of this part of the Nile Valley during this phase of human occupation. The aforementioned dates not only show that the Sebekian culture was coeval with Upper Paleolithic cultures in such regions as Western Europe (for example the Middle Magdalenian) and southwestern Asia; they also provide relative ages for several other different lithic industries with which the Sebekian is in stratigraphic relationship at Kom Ombo. In addition, we now have a geologically useful absolute dating for the period when the late Pleistocene Nile was still depositing silts in what is now desert before it shrank into its modern narrow floodplain during Holocene times. This should supplement the data on Nile geological history recently presented by Fairbridge (*4*) and other data which may be expected soon from current investigations in Egyptian and Sudanese Nubia (*5*).

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References and Notes

1. For a complete listing of all archeological radiocarbon dates from Egypt up to 1961, see A. J. Jelinek, *Current Anthropol.* **3**, 451 (1962).
2. E. Vignard, *Une nouvelle Industrie lithique, le Sébilien* (Institut française d'Archéologie orientale, XXII, Cairo, 1923).
3. Isotopes, Inc.
4. R. W. Fairbridge, *Nature* **196**, 108 (1962).
5. R. Said and B. Issawy "Preliminary results of a geological expedition to Lower Nubia and to Kurkur and Dungel Oases, Egypt," *Contributions to the Prehistory of Nubia*, No. 1, F. Wendorf, Ed. (Museum of New Mexico, Santa Fe, 1964).

1 June 1964

Purified Interferons: Physical Properties and Species Specificity

Abstract. *The antiviral activity of highly purified preparations of chick and mouse interferons has marked species specificity. This species specificity is not explained by a demonstrable difference in adsorption rates. There is no difference in charge between the molecules as measured by combined zone electrophoresis or ion-exchange chromatography. The interferons are distinguishable by thermal inactivation studies and by precise chromatography on G-100 Sephadex columns. With the latter method, interferons produced by the same cell species (i) in vivo or in vitro, or (ii) in response to different viruses, have been shown to be identical. The same virus stimulates physically distinguishable molecules in the two different cell species. These findings indicate that interferon is a virus-induced product of the host genome.*

The molecular weight and charge of chick interferon have been disputed recently (*1–4*). Crude interferons have been prepared by others (*5*) in which the antiviral activity measured in heterologous assays varied from 1 to 10 percent of the homologous antiviral effect. No precise physicochemical