than the sporadic background rate at about 14h. 20m. on this date. A slow rise in activity until 15h. was followed by rapid increase to a maximum at 15h. 40m. on the radiant survey apparatus and at 15h. 50m. on the steerable beam equipment (described in *Mon. Not. Roy. Astro. Soc.*, **107**, 164; 1947). It is suggested that this difference of ten minutes in the time of peak activity may have been due to the slightly different polar diagrams for reception in the two equipments. The matter is fully discussed in the paper, and the following question arises: Considering the intense shower during 1952 when the Earth crossed the cometary orbit 193 days before the comet, why were the results negative in 1953 when the Earth was at the node 172 days after the comet? A discussion of this problem leads to the suggestion that perturbations increased the perihelion distance of the meteors in front of the comet relative to those which followed it; if this view is correct, there is nothing to support the idea that the debris is concentrated near the comet, and in fact there remains the possibility that it is distributed all around its orbit.

Among other interesting data, reference may be made to the shower on October 10, 1946, the curves of activity as measured by the visual, photographic and radio-echo techniques showing a temporary decrease in activity at 3h. 30m., and a similar drop was evident from Canadian observations. While the radio-echo rate reached a maximum at 3h. 43m., the maximum in the visual and photographic rates occurred twelve minutes later. These peculiarities are explicable if a separation of meteor masses had taken place, the main peak in the radio echo curve at 3h. 43m. being due to faint meteors below the photographic and visual limits. While such a separation of the particles could arise from the Poynting–Robertson effect, there are difficulties in accepting this view, and some other explanation must be sought.

REMANENT MAGNETISM OF SWEDISH VARVED CLAYS AND ARTIFICIAL SEDIMENTS

TWO papers under the joint title of "The Remanent Magnetism of Varved Clays from Sweden: the Remanent Magnetism of Artificially Deposited Sediments" have recently been published (*Mon. Not. Roy. Astro. Soc., Geophys. Supp.*, **7**, No. 3; 1956), the first being by D. H. Griffiths and the second by R. F. King, both of whom are in the Department of Geology of the University of Birmingham. The first paper describes the attempt to obtain information about the Earth's magnetic field in the past. The investigation commenced with the collection in 1938 of a thousand-year varve series at Prästmon on the Ångerman River, and then a similar thousand-year series collected at Undrom, which lies a few kilometres upstream from Prästmon. This series was older but overlapped the Prästmon varves by about four hundred years. A year later, varves of Glacial age were collected from sections in the vicinity of Ragunda on the Indal River, and in the same year continuous varved cores were obtained from the present delta of the Angerman River near Kramfors, covering approximately the period A.D. 1300–1900. It was known that the clays to be measured had magnetic moments of 10^{-4}–10^{-6} c.g.s. units/c.c., and a description with a diagram is given of the a.c. magnetometer designed by E. A. Johnson to measure an induced e.m.f. of the order of a microvolt; while this, generally speaking, was satisfactory, it had certain faults which set a limit to the accuracy with which weak specimens could be measured.

About 150 samples were measured, roughly divided between the two localities of Prästmon and Undron, and the total interval covered by the samples was from about 1100 B.C. to A.D. 750, the period covered by the overlap being 150 B.C. to A.D. 250. As a result of the measurements, some tentative conclusions have been arrived at, among which the following may be mentioned. In a favourable environment the polarization directions acquired by varved clays on deposition have directions which, on correction for the tilt of the layers, lie sufficiently close to the Earth's original direction of field to give at least a rough approximation to the secular variation at the time. If, however, the environment during deposition is unfavourable, the polarization directions may be widely scattered and even systematically deviated, and in such cases they may show little relation to the direction of field. This seems to have occurred with the Angerman River delta sediments from which the cores were taken, and it is suggested that the bottom currents are the factor most liable to create an unfavourable environment.

With one exception, these conclusions are in the main substantiated by the laboratory sedimentation experiments of Dr. R. F. King. In this work, a small 'Perspex' tank was made, with arrangements for feeding in a slurry of silt which slowly settled on a tray in the floor of the tank, from which samples could be taken and their directions of magnetization measured. A magnetic field around the tank was provided by Helmholtz coils, and the direction and intensity of the resultant magnetic field were varied, currents being created in the tank. An attempt was then made to discover what factors, other than the magnetic field, controlled the alignment of the permanently magnetized particles which give the sediment its remanent magnetic moment. Two such factors were found to be important—the slope of the surface on which the silt is deposited, and the current flowing in the water immediately above this surface—and as they are known to be operative in Nature, similar effects are likely to occur during natural sedimentation. Even in their absence, however, artificially deposited sediments are not magnetized exactly in the direction of the magnetic field, but at a slightly lower inclination to the horizontal. It is pointed out that this effect may or may not occur in Nature, and is somewhat dependent on the state of dispersal of an artificial sediment during deposition. "All three effects may be explained in terms of a simple model which supposes the sediment to be composed partly of spheres, the alignment of which in the field is perfect, and which can roll on a sloping bed or in a current, and partly of flat particles which settle with the plane containing their magnetic moment horizontal. There is no direct evidence of the existence of large numbers of plate-like particles, and it may be that they occur in quantity only in the special conditions of dispersal to be found in the tank, and not in Nature."

Further work on the nature and distribution of the magnetic particles is in progress, and more recent sediments have been collected from Iceland.