

From the mean direction and the assumed geocentric axial dipole field a virtual pole location at the present geographical co-ordinates 160° E., 19° N. is derived. This pole position is in good agreement with the red sandstone result from elsewhere in Europe and Russia and significantly different from that obtained by Stubbs¹ based on the lavas of the Midland Valley of Scotland. The magnetization of red bed formations of Central Europe and Russia therefore seems not to be satisfactorily explained by remagnetization, and the possibility still exists of there having been two Devonian field directions.

This research has in part been supported by "L. Meltzers Høyskolefond", "Nansenfondet og de dermed forbundne fond" and by the Norwegian Research Council for Science and the Humanities. We thank Mr. E. Halvorsen for carrying out the thermal tests.

K. M. STORETVEDT
GURO GJELLESTAD

Department of Geophysics,
University of Bergen,
Norway.

- ¹ Stubbs, P. H. S., thesis, Univ. London (1958).
- ² Chamalaun, F. H., and Creer, K. M., *J. Geophys. Res.*, **69**, 1607 (1964).
- ³ Chamalaun, F. H., *J. Geophys. Res.*, **69**, 4327 (1964).
- ⁴ Goldschmidt, V. M., *Skr. Norske Vid. Akad. Kristiania, Mat.-Naturv. Klasse*, No. 9 (1913).
- ⁵ Halle, T. G., *Kungliga Srenska Vetenskapsakademins Handlingar*, 57 (1916).
- ⁶ Holmsen, P., *Norges Geologiske Undersokelse*, **223**, 127 (1962).
- ⁷ Holtedahl, O., *Norges Geologiske Undersokelse*, **208**, 294 (1960).
- ⁸ Fisher, R. A., *Proc. Roy. Soc., A*, **217**, 295 (1953).
- ⁹ Irving, E., *Paleomagnetism* (John Wiley and Sons, 1964).

Strontium-90 and Caesium-137 in Precipitation in Finland

PRECIPITATION has been collected monthly at seventeen stations in Finland since 1961. Until the end of 1963 the rain-water samples were collected with stainless steel funnels which drained into ion-exchange columns. The columns were placed in boxes fitted with a thermostat, and in winter the funnels were heated. Comparison of the results obtained from samples collected by ion-exchange and from those collected directly into polythene bottles,

however, indicated that the former method of sampling does not work satisfactorily in cold regions. In poorly stabilized conditions, caesium, especially, seemed to run through the resin. For this reason, dry and wet deposits have been collected since 1964 with the funnels draining directly into polythene bottles.

Radiochemical analyses of strontium-90 and caesium-137 were carried out according to the method developed by Osmond *et al.*¹ Fig. 1 shows the monthly averages for the deposition of strontium-90 and caesium-137 and the precipitation at the seventeen stations.

Deposition of strontium-90 and caesium-137 at the stations was about 40 per cent of that of the preceding year, while the amount of precipitation was about 15 per cent higher in 1965 than in 1964. The values found for the deposition in Finland agree well with those found in other places between 60° N. and 70° N. in similar weather conditions^{2,3}.

I thank Prof. K. E. Salimäki for his advice during this work.

ANNELI SALO

Institute of Radiation Physics,
Helsinki.

- ¹ Osmond, R. G., Owers, M. J., Healy, C., and Mead, A. P., *The Determination of Radioactivity Due to Caesium, Strontium, Barium and Cerium in Waters and Filters*, AERE-R 2899 (Harwell, Berkshire, 1959).
- ² *Rep. U.N. Sci. Comm. Effects of Atomic Radiation. Gen. Assemb. Off. Rec.: Nineteenth Session, supplement No. 14 (A/5814)*.
- ³ *Fallout Program Quart. Summary Rep., HASL-165* (Health and Safety Laboratory, U.S. Atomic Energy Commission, New York, 1966).

Amino-acids in the Mountsorrel Bitumen, Leicestershire

THE Mountsorrel granodiorite¹⁻³ is situated 7 miles north of Leicester. The intrusion is boss-like in form, about a mile in diameter, and is considered to be Caledonian as it has an isotopic age of 403 ± 18 m.y.^{4,5} The mineralization which occurred within the granodiorite after consolidation has been studied by many workers; the most recent is King⁶, who subdivided the mineralization into five stages, the first two being pneumatolytic and the others hydrothermal.

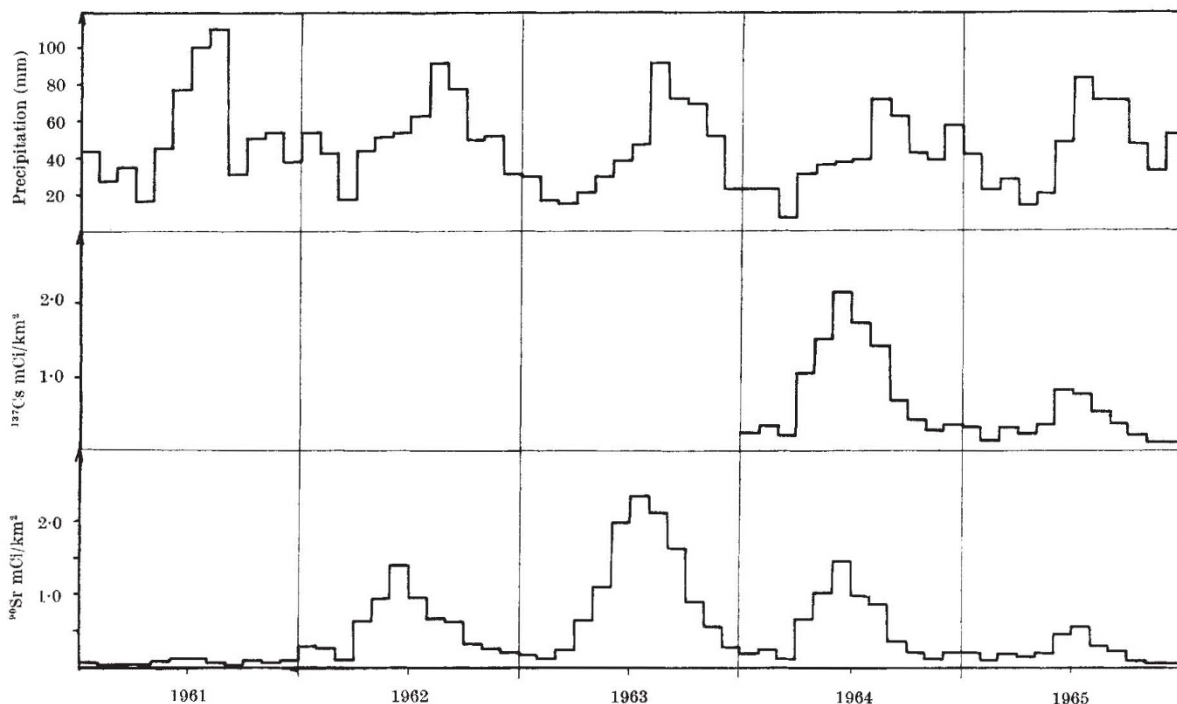


Fig. 1. Deposition of strontium-90 and caesium-137 and the amount of precipitation at the seventeen stations in Finland.