

exposures away from the shore, that sedimentary infiltration and a reddish stain have run along joint cavities in the quartzite. The sediment infiltration suggests deposition against a scarp, possibly a fault scarp, though no fault has been demonstrated. It is considered that most, if not all, of the dip of the conglomerates near the present shore is original.

The observation of the sediment infiltration was checked by Sir E. B. Bailey and he unhesitatingly accepted the sedimentary contact of the sandstone series against a cliff of the metamorphic quartzite formation.

The above supports the Geological Survey's date, which was based on the very "Old Red" look of the sediments.

GERALD ANDREW.

GEOLOGICAL SURVEY OF ANGLO-EGYPTIAN SUDAN,
KHARTOUM.

6th November, 1951.

DOUBT AND CERTAINTY IN SCIENCE

SIR,—Two leaders of palaeontological thought in Europe have this year published discussions of the problem of extinction of faunas. (Both works were reviewed in this Magazine, 1951, vol. lxxxviii, pp. 303 and 372). The two following extracts summarizing their conclusions make an interesting comparison and provide food for thought.

"These wholesale disappearances and the sweeping changes in the population of sea and land which result from them always correspond with important geological events. Regularly they accompany great transgressions or regressions of the sea, tectonic upheavals, or climatic changes; in short, they coincide with the great geodynamic crises which periodically modified the face of the earth."—C. Arambourg, 1951, in *Paléontologie et Transformisme*, p. 97.

"The supposition that flourishing groups of cosmopolitan organisms could be annihilated by mountain-building or changes in the distribution of land and sea is untenable and must emphatically be rejected . . . It is therefore very short-sighted when, over and over again, organic evolution and above all extinction of faunas and floras is represented as closely dependent on geological events."—O. H. Schindewolf, 1951, *Grundlagen und Methoden der paläontologischen Chronologie*, pp. 119, 121.

Both pronouncements are supported by an impressive array of facts.

W. J. ARKELL.

THE SEDGWICK MUSEUM,
CAMBRIDGE.

19th November, 1951.

REVIEWS

PROCEEDINGS OF THE FOURTH EMPIRE MINING AND METALLURGICAL CONGRESS, 1949. Edited by F. HIGHAM. 1,139 pp. Published in two Parts at the offices of the Congress, London, 1950. Price 40s., or separately at 20s. each Part.

Some forty papers covering a wide range of topics were introduced during the course of the seven technical sessions comprising the main proceedings of the Fourth Empire Mining and Metallurgical Congress held in Great Britain in 1949. In detail, the sessions were concerned with (i) Empire mineral resources, (ii) modern prospecting methods, (iii) the effect of heat and humidity on workers in deep mines and metallurgical industries, (iv) drilling for petroleum, (v) the characteristics and resources of Empire coals and coal mining practice in Great Britain, (vi) mineral dressing, and (vii) mining and metallurgical industries.