

to allow the approximately horizontal chalk to the north to sink slightly and have its edges caught up along the fault. For the chalk north of the fault to retain so far its original character the gentlest form of bending, which is sagging, should be invoked.

A noticeable assertion by Dr. Arkell is that where the fault reaches the foot of the cliff the chalk south of, or below, it is younger than that north of or above it. Has he any evidence to support this relative dating? It is a point of cardinal importance, if it can be established.

A very great difficulty in this case is to remember constantly that the cliff line in Studland Bay is broadly parallel to the Purbeck fault, not at right angles to it, and therefore nowhere at any great distance from it, and that any dip visible in Studland Bay is mainly, if not wholly, attributable to the system of very broad undulations: with north and south axes, which carry the gently synclinal chalk underlying the Tertiaries out of sight between Corfe and Lulworth, and then bring it up to a very considerable height about Lulworth. In this latter block the chalk appears to be practically horizontal, the chalk around Wool not yielding *Magas pumilus* so far as is known and being therefore basal *mucronata* and that of Coombe Keynes and the edge of Lulworth Park yielding *Magas pumilus* but not much variety or abundance of other fossils and being apparently "lower *mucronata*" of Spencer while that on the high ground above Lulworth yields *Magas pumilus* with a variety of other fossils comparable with those of the chalk of Studland Bay, which is "middle *mucronata*" of Spencer, and being perhaps even somewhat richer and therefore presumably younger than the latter chalk. It would be very interesting to know if this chalk bends up sharply on approaching the Purbeck fault, as is strongly suggested by the behaviour of the *quadratus* chalk in Bat's Head.

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THE GEOLOGY OF KAVIRONDO.

SIR,—In his paper on "The Geology of an Area in the Kavirondo District, Kenya Colony" (*Geol. Mag.*, January, 1936), Dr. Pulfrey says:—

"Previous to 1931 the Kakamega area, in the Central Kavirondo Reserve of Western Kenya, was almost unknown from a geological standpoint. Gregory had made brief references to it, but no detailed geological or petrographical examinations had been made of any part. Following on the discovery there in 1931 of alluvial and reef

gold, and subsequently the entry of mining companies into the field, a great deal of geological research has been carried out."

It seems strange that Dr. Pulfrey should have overlooked the pioneer work of Combe, whose report and map laid the foundations of the geology and petrology of the area; for although the full report and map were not printed, they were lodged in the Kenya Secretariat (and subsequently in the Mines Office?), Nairobi, so that all official geologists have had access to them, and condensed statements, by Combe, giving a fair amount of detail were published several years before 1931. The references are:—

(1) "Kavirondo, Kenya," *Ann. Rept. Geol. Surv. Uganda* for 1927, p. 15.

(2) "Kavirondo, Kenya," *ibid.*, for 1928, p. 9.

(3) "The Green-Grey Rocks of North Kavirondo," *ibid.*, for 1929, p. 18.

At the end of the second of the publications listed above the following will be found:—

"In a further search for mineral deposits, the belt of intruded rocks of the Karagwe-Ankolean System along the edge of the Maseno intrusion should be prospected in an easterly direction adjacent to the Edzawa River in Northern Maragoli and Nyangori."

This advice was taken and resulted, as is now widely known, in the discovery of the Kakamega goldfield.

With regard to works relevant in this connection published after 1931 but before the appearance of Dr. Pulfrey's paper under reference, but not therein referred to, the following should be noted:—

"The North Kavirondo Area," by A. D. Combe, *Mem. II Geol. Surv. Uganda* ("The Geology of South-West Ankole . . ."), Appendix II ("The Distribution of the Rocks of the Karagwe-Ankolean System"), 1932, p. 218.

"A Contribution to the Study of the Geology of Kavirondo," by K. A. Davies, *Bull. No. 2, Geol. Surv. Uganda*, 1935, p. 30.

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THE BASAL COMPLEX IN JAMAICA.—A REPLY.

SIR,—I have read with much interest Dr. C. T. Trechmann's paper in the June number (pp. 251-267) on the Basal Complex in Jamaica. As he takes a quite different view of the age of the Jamaica schists and granodiorite from that expressed in my 1929 paper (*Q.J.G.S.*, lxxv, 440-492) I wish to say at once that I am not convinced by the evidence, particularly as to the age of the grano-

But although the author did not see these schists he discovered the very interesting section in the cliff below the Lazaretto shown in his text-fig. 3. The succession there is read by him as (4) normal White Limestone underlain by (3) a few inches of friable broken-up yellowish dolomitized limestone, which in its turn overlies (2) a grey and streaky or white marble 1-2 feet thick. This marble passes down into (1) a "hornfelsed and darkened limestone, veined and fractured". The author considers that all these beds belong to the White Limestone formation, and that the lower beds have been thermally metamorphosed by "probably some intrusion not far away". On the other hand, my own interpretation of his text-figure is that the base of the White Limestone should be drawn below the few inches of dolomitized limestone, and that the marble and hornfelsed beds below it are members of the Basal Complex on which the limestone rests unconformably, as it does on the hornblende-schists near by.

How otherwise is the presence of the hornblende-schists to be explained? The White Limestone in this area forms a gentle dome with dips of 25° to 30° , and has never been subjected to severe earth-movement, yet in the core of the dome immediately underlying the normal limestone we find thoroughly foliated schists which give evidence of two periods of dynamo-metamorphism and a much longer geological history.

I consider that the author has failed to prove his case for the Tertiary age of the granodiorite, and, in my opinion, can never hope to do so. He himself notes (p. 263) that the White Limestone can be found within a few inches of this great plutonic mass with no more change than a little dolomitization, although there is a wide zone of hornfelsing not far away. He offers the explanation (without giving any proof) that the hornfelsed rocks have fallen into or become pendent in the granodiorite, while the unaltered limestone is "at the outer contact"! My own view is of course that the plutonic rock was already unroofed when the White Limestone was deposited and that both it and the hornfelsed beds are of much earlier age and are part of the Basal Complex.

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5th June, 1936.

NOMENCLATURE OF CONGLOMERATES.

SIR,—In a study entitled "An attempt at the Correlation of the Ancient Schistose Formations of Peninsular India", the first part of which is now in the press (*Memoirs Geological Survey of India*, lxx), I have had occasion to discuss the nomenclature of conglomerates, and as this may prove of interest to the readers of your