

form of the intrusion, in the presence of a curved, flanking fault, and in the shearing of early consolidated parts of the mass.

The dykes point to the operation of regional tensional stresses which, co-operating with the pressure of the magma, opened parallel north-north-east and south-south-west fissures. It is suggested that the concentration of the dykes was due to the pasty condition of the internal parts of the granite mass, which yielded to the stresses and caused a localization of fissures in the surrounding solid rocks.

After the intrusion of the majority of the dykes, a further subsidence within the Cruachan granite mass admitted the central core of the Starav granite.

The principle underlying the interpretation of the phenomena described is the upward movement of igneous magmas in correlation with complementary subsidence of portions of the earth's crust.

2. "The Pitting of Flint Surfaces." By Cecil Carus-Wilson, F.R.S.E., F.G.S.

Regular pittings of uniform size are occasionally seen on flints which have been exposed to the weather. They have been referred to by various authors, but no satisfactory explanation of their origin has been given. The author procured some interesting examples occurring in a recent deposit near Folkestone. This deposit is formed of materials which appear to have been washed down from the adjacent chalk hills. The flints appear to have been derived from the sandpipes in the Chalk: their surfaces are much decomposed. The removal of the colloid silica has rendered them very porous, and they absorb a good deal of water. It is believed that the pittings are due to mechanical action. Observations and experiments carried out by the author indicate that such markings cannot have been produced by blows, nor by any process of desiccation, and that the freezing of the absorbed water seems to be the only satisfactory explanation to account for the various details of the phenomenon.

CORRESPONDENCE.

THE GENOTYPE OF *LOXONEMA*, PHILL.

SIR,—About a week after the publication of the Quart. Journ. Geol. Soc., vol. lxxv, pt. ii, May, containing in full my paper on the genus *Loxonema*, read on January 13, I received vol. viii of *Essais de Paléonchologie Comparée*, by M. Cossmann, published in April, but apparently only distributed in June.

It is impossible to bestow adequate praise on this admirable and laborious work, and I feel sorry to be obliged to differ on any point from its learned author. Nevertheless, I have unwittingly taken a different view with regard to the genotype of *Loxonema*, and I consider it advisable to give my reasons for so doing in greater detail. More especially do I feel the need of this since I also at first was in accord with M. Cossmann in taking the Devonian form erroneously described by Phillips as *L. sinuosum* (Sow.) for genotype (Quart. Journ. Geol. Soc., 1905, vol. lxi, p. 564). Further investigation, however, has convinced me that the Silurian *L. sinuosum*, described by Sowerby as *Terebra? sinuosa* (Sil. Syst., p. 619, and

pl. viii, fig. 15), must be the genotype. Two considerations have led to this conclusion.

1. Phillips mentions *L. sinuosum* first when enumerating species which he associates with it in the genus, and before he describes his Devonian form which he considers conspecific. When an author does not fix on a genotype it is usual to take as such his first-named species if represented by a sufficiently well preserved specimen, which is the case with this. Phillips' Devonian shell, being quite distinct, has no right to the name *sinuosum*.

2. The first author who clearly declares one of these species to be the genotype should be considered to decide the matter. I have shown that S. P. Woodward and P. Fischer are ambiguous. Lindström by implication selects *L. sinuosum* (Sow.) as genotype, but Professor Koken is the first to do so unequivocally, for in 1889 (Neues Jahrb. f. Miner. B.B., vi, p. 441) he states, "Der Typus ist *L. sinuosum* Sow. aus dem Obersilur." Again, in 1896 (Jahrb. der k.k. geolog. Reichsanstalt, Bd. xlvi, Heft i, p. 117 [81]), after discussing the different forms included by Phillips in the genus, he writes, "*L. sinuosa* Phill. ist also der Typus im wörtlichen Sinne, aber nicht die ganz typische Form, denn Sowerby's *Terebra sinuosa* aus dem Aymestrykalk mit welcher Phillips sie identificirt und welche der ideale Typus der Gattung ist, weicht nicht unbeträchtlich von der *sinuosa* des Clymenienkalkes ab. Wenn man die *echte*, obersilurische *L. sinuosa* Sow. sp. neben eine *Zygopleura* hält sieht man am besten, wie weit sich die letztere schon vom Ausgangspunkte der Gruppe entfernt."

Dr. Perner (Syst. Sil. Centre Bohême, pt. i, vol. iv, Gastéropodes, tome ii, 1907, p. 324) writes after the description of the genus, "Type: *Loxonema sinuosum* Sow." On p. 325 he divides the *Loxonema* into two groups, and on p. 327 calls the first "Groupe de *Loxonema sinuosum* Sow."

M. Cossmann (p. 16) seems to think that Koken considered *Terebra sinuosa*, Sow., a *Zygopleura*, but a reference to the passage quoted above shows the contrary to have been the case. In the preceding paragraph Koken writes, "Die letztere [*L. rugifera*], Phill. ist eine carbonische *Zygopleura*, verwandt mit der devonischen *costata* Sdb., aber sehr verschieden von den Loxonemen der *Sinuosa*-Gruppe, auf welche der Name zu beschränken ist."

Since M. Cossmann (p. 18) has substituted the name *L. Pernerii* for *L. propinquum*, Perner, which was preoccupied, and his work is prior in publication to mine, the species called *L. Pernerii* by me (p. 221, and pl. xi, figs. 1-3) must yield to his, and I would therefore suggest the name *L. Cossmanni* for my species.

J. LONGSTAFF.

HIGHLANDS, PUTNEY HEATH.
June 12, 1909.

ARCHÆAN OR LOWER PALÆOZOIC ROCKS IN THE MALAY PENINSULA.

SIR,—Dr. R. D. M. Verbeek, at the end of his "Rapport sur les Moluques" (edition Française du *Jaarboek van het Mijnwezen in*