with upwards of 100 teeth of *Pleuracanthus gibbosus*, regarded by Agassiz as one of the earliest examples of the flat cartilaginous fishes represented by the Sting-ray in the present seas.

XIX. Mr. JAMES STOKES exhibited—

A model section of the Black Prince Pit, at Shettleston, made up of the finely pounded material of the various strata passed through in sinking the pit to the “virgin” or “sour-milk” coal—compressed in consecutive order into a narrow box, about seven feet in length by four inches in breadth, with a glass front, displaying distinctly not only the order of superposition and respective thickness of each bed, but also the colours of the various strata, each of which is clearly defined.

XX. *On continuous internal movements in the earth's crust.* By
Mr. JOHN REID.

ABSTRACT.

THE author, in proof of the various internal movements in the crust of the earth, which formed the subject of his communication, referred to many well-known phenomena, such as the thin, soft, clayey layers always found between the various beds in our coal-pits, and which are composed of the ground materials of the contiguous beds—the soft fire-clay at the bottom, and sometimes forming the roof of our coal seams—the vertical cracks in all hard beds of coal and rocks, of which there are two lines running nearly at right angles to each other, one of which, running north-east and south-west, forms what in coal-workings is called the *plane* of the coal, the other, north-west and south-east, forming the so-called *end cracks*—also, the oblique cracks in softer strata, and the highly-polished surfaces so abundantly found in fire-clay, coals, &c., known by the name of *slickensides*. Fire-clay, especially when affected by the movements he referred to, was the worst possible roof that a coal-mine could have, and also the most dangerous, as it falls without giving warning. The finest seam of coal for domestic purposes in the Glasgow district has this kind of roof, which makes it very expen-

sive to work; and large portions of the splint coal in the Wishaw district are all but unworkable, from their having this roof full of what the miners call "*types*" and "*lunkers*." The author stated his conviction that, but for the movements he referred to, colliery managers would not require to leave such large portions of coal in the stoops to support the roofs of their mines. They loosen the coal, and the weight of the superincumbent mass then crushes it into dross and closes up the mine; and mines are often lost from this cause. He believed this motion to be at the root of nearly all the danger attendant on coal-mining; and its hurtful influence was not confined to underground workings, but was often fatally felt on the earth's surface, especially in the giving way of reservoir embankments, &c.; and until engineers recognised it and provided against its effects, such catastrophes as had so often occurred within his own recollection (several of which he referred to) would occur again and again.

XXI. *Descriptive Notice of the Position and Character of several of the Igneous Rocks and Minerals in the Northern front of the CATHKIN HILLS.* By Mr. R. WHYTE SKIPSEY.

FROM the whinstone quarries on the Carmunnock Road, south of Rutherglen eastward to Crossbasket, the ground slopes rather rapidly, its igneous character becoming less prominent, and ending with a large area of the Carboniferous strata, consisting of common and cement limestones, clay-band ironstones and shales,—westward to Carmunnock the ground becomes elevated for some distance, exhibiting fine sections of columnar basalt, particularly at a quarry close to that village, where the columns are well defined, and nearly equal to those at Cathkin.

These quarries exhibit, as is often the case with extensive similar workings, a great variety of igneous productions, basalts, columnar and amorphous, greenstones of varied colours and appearance, the softer kinds of claystones and shales, compact and laminated with the simple minerals, more or less the concomitants of such rocks, consisting in this case of masses, cavities, and veins of green jasper, amethysts, and other quartz crystals, calcareous spar, and talcose chlorite.

The most prominent feature claiming attention is the cluster of