proper pronunciation may be approximately known. Exceptions should be in cases where the spelling has become by custom fixed, and occasionally it may be desirable to give both forms."

We write of Caucasus and Georgia, not Kavkaz and Grusia. But other legitimate exceptions in the Caucasian Provinces it might be hard to find. The fact that in the case of India the Society, for reasons of convenience, accepted the system, closely kindred to its own, already adopted and embodied in Hunter's Official Gazetteer, can be in no way to the point in the case of the dominions of another Power. I can discover no reasonable ground whatever for the confusion of mind into which my critic has fallen. DOUGLAS W. FRESHFIELD.

Alpine Club, April 9.

"A Gigantic Geological Fault."

IN the very interesting description, by Captain A. H. McMahon, of the features of the country on the southern borderlands of Afghanistan, which appears in the *Geographical Journal* for this month (April 1897, p. 393), he gives an account of a remarkable trench, or depression, running in a nearly N.N.E. and S.S.W. direction along the borders of Registan, which he was able to trace for 120 miles, but which may extend for a much greater distance through that wild region, and he clearly identifies it as the line of a large fault dividing a district composed of sedimentary rocks on the east, from one formed of igneous rocks on the west. On reading this account, the resemblance of this line of fracture to that of the Jordan-Arabah Valley at once suggested itself to my mind. The resemblance is nearly complete as regards the latter, from the head of the Gulf of Akabah as far as the northern end of the Dead Sea, at least; except in this respect, that in the case of the Jordan-Arabah fault the sedimentary rocks occur on the west side, and the igneous rocks on the east. But the author has surely been misinformed as regards the statement, that "the length of this fault (which he traced) exceeds that of any fault-line as yet discovered on this earth" (p. 403). As far as actual observation goes, that of the Jordan-Arabah Valley is much longer; for, measured only from the head of the Gulf of Akabah to the base of Hermon, it has a length of 270 miles or more; while there can be little doubt that it ranges still further north into the valley of Cœle-Syria. In the opposite direction, it may well be supposed that it follows the Gulf of Akabah for an unknown distance. It will thus be seen that the fault-line of the Jordan-Arabah Valley is very much longer than that of the border of Registan, described by Captain McMahon, as far as actual observation is concerned. But I am very far from asserting that either the one, or the other, exceeds in length that of any fault-line yet discovered. EDWARD HULL.

Effects of Electrical Discharge on Photographic Plates.

IN your issue of January 21, you published a note of mine on certain effects produced by charged conductors on sensitive plates. In the case of the radiograph of wire skeletons, I find that this is not an electrical effect, but is, in accordance with my alternative suggestion, undoubtedly due to the unequal loading of the film with silver particles, which set themselves in the pattern shown in the illustration when the gelatine is raised to a temperature near its melting point.

The images of coins have been referred to by Mr. Brown and Mr. Sanford in their interesting letters, published January 28 and March 25 respectively (pp. 294, 485).

I am also indebted to Prof. Smith, of Oxford, for a description and specimen of his beautiful "Inductoscript," in which very perfect images of coins and other objects are obtained by charging them inductively.

In cases of brush discharge, such as that of the coins figured in illustration of my note, much of the effect is undoubtedly due to the luminous and ultra-violet radiation; but this seems hardly to cover the whole ground. Both Prof. Smith and Mr. Sanford have got results which seem to point to some more direct electrical action, the latter having secured images of coins imbedded in gutta-percha and other insulators. To test this, I have placed a sensitive plate between two sheets of ebonite about $\frac{1}{16}$ of an inch thick, which were placed upon a brass face-plate, and a coin laid upon the upper ebonite plate. The positive pole of the coil was connected with the brass plate, and the negative with the coin, and current passed for about two minutes. On development, an image of the coin came out, showing the design and a radiating halo, but out of focus and somewhat blurred, as might have been expected, as the coin was separated from the plate by the thickness of the ebonite sheet. This seems to point to some action other than that of the luminous discharge, which was plainly visible on the upper surface of the ebonite round the coin.

It would be interesting to know the arrangement of condenser used by Mr. Sanford. JAMES I'ANSON.

Fairfield House, Darlington, April 13.

Curved Knives.

IT may interest your correspondent, Dr. Otis T. Mason, to know that the curved "drawing-knife" described by him has representatives in Western (British) India. The Kolis (fishing races) of the Bombay coast wore lately, and some still wear, knives made by local blacksmiths, of which the blade, 2 to 3 inches long, was shaped and edged like that of an English gardener's knife. There was no hilt, but a tang curved reversely to the blade, ending in a little curl. The whole figure was that of a manuscript capital S, with the lower curve heavily drawn and a fine finish at the top. Through the curl was passed a soft lanyard, and the whole worn round the neck, the knife hanging like a locket a little below the collar-bone. The way in which a man, holding the thin tang between the thumb and forefinger, or between two finger-knuckles, would cut anything, from a cable to a fish's head, was the more wonderful, as he would often prefer bringing his breast near the object to unslinging his knife. These knives are now passing out of use, displaced by old English and German clasp-knife blades, still without the hilts. The form must be very ancient, as bronze knives or razors of much the same shape are figured in most books about the European Bronze Age, and in Du Chaillu's "Viking Age." I am inclined to suspect a flint origin for this form of tool. Flint flakes in Western India, from Sind to the Konkan, often show a curved inner edge with traces of use. And if any one tries to cut wood with a hiltless flake of the sort, he will find the inner edge the most efficient. The Indian farrier's "drawing-knife" is shaped like a sickle, squarely truncated to avoid the chance of injuring the horse's foot (just as the English farrier's knife is turned to one side for the same reason). Its hilt is a mere roll of coarse tape, but the grip of the hand is often that shown in Dr. Otis Mason's illustration.

The various *hafted* knives of India, with interior edges, belong to another class; but the handle shown in this plate seems to be just an improvement on the simple blades mentioned above, and a very creditable one too. W. F. SINCLAIR.

102 Cheyne Walk, Chelsea, April 9.

Electrical Vibrations of Mercury.

THE following observations were made with a globule of mercury, about $1\frac{1}{2}$ cms. in diameter, placed in a photographic developing dish containing some ordinary tap water, the mercury being well covered with water. A 4-volt accumulator of 6 ampère-hours' capacity supplied the current. Two wires from the terminals served as anode and kathode; the kathode had a short piece of fine wire attached, and this was so adjusted that it only just touched the mercury.

(1) When the circuit was completed by dipping the anode into the water, the mercury, after a few seconds, became visibly flattened.

(2) If the circuit was broken, or the mercury became detached from the kathode, it at once regained its original shape.

(3) When the circuit was completed, and the mercury becoming flattened broke away, it was thrown into a regular and continuous vibration.

(4) The frequency and amplitude of the vibrations depended on the distance of the anode from the kathode, the frequency and amplitude increasing as the anode was brought nearer.

(5) If the current was reversed, thus making the kathode an anode, the vibrations were not produced.

(6) The vibrating mercury generally retained its circular shape, but sometimes it became almost square, or took the shape of a cross, which seemed to be produced by a rapid motion alternating at right angles.

(7) The water was thrown into circular waves, which corresponded to the vibrations of the mercury.

(8) If the circuit was broken, and an interval of time was allowed to elapse, and then again completed, a decided lag was observed between the "making" of the circuit and the flattening of the mercury. If no appreciable lapse of time took place between "make" and "break," the response was instantaneous.

42 Henslowe Road, East Dulwich. ERNEST BRAUN.