one-third of an ohm, in place of the twenty or thirty ohms when the coil is made up of 180 feet of the much finer wire.

I have had no opportunity of satisfactorily testing the limits to which the sounder is restricted, but it would probably work well enough when the resistance did not exceed ten or fifteen ohms per Daniell cell. A marked advantage is usually found to attend the sending of the current in that direction, which increased the power of the magnets of the telephones. And in using the sounder a little skill will elicit a considerably augmented effect.

The principle of split currents may be applied to other purposes ; it might offer a ready method of communicating with two adjoining stations on a railway from any intermediate point—that is to say, at any point between the two extreme telephones we could attach a battery or a telephone for sounding to, or communicating with, the attendants at the extreme telephones ; or, if a battery be permanently included anywhere in the circuit, a wire alone, at any point on the line, offers the means of sounding the telephones at both stations, the wire being so used as to form an intermittent connection between the earth and the telephone line ; and this might perhaps be practicable even from a train in motion, the engine and rails taking part in the earth connection.

2. An Account of some Experiments on the Telephone and Microphone. By James Blyth, M.A.

DR M'KENDRICK stated, that by applying the microphone or carbon-interrupter of Hughes to the membrane of a phonograph, he had succeeded in using the latter as a transmitting instrument. With such an arrangement, speech could be heard in the distant telephone even after it had become inaudible near the phonograph. He also mentioned that a tambour of Marey, used in physiological experiments, spoke distinctly when the fine point at the end of the lever was applied to the marks on the tinfoil of the phonograph. When a tube was carried from the tambour to the ear, distinct speech could be obtained from phonographic tracings on copper foil, which were scarcely perceptible to the eye. This method also got rid of the difficulty of having the tinfoil impressions quickly rubbed out, as happened when the stillette of the phonographic membrane

was employed. He also introduced to the Society a phonograph made by Messrs Macgillivray and Scobie of Glasgow, which, for loudness, was superior to any one he had yet heard.

3. Note on a Variation of the Microphone. By R. M. Morrison, D.Sc.

Following out a suggestion made by Mr Seabrook in *Nature* of May 30th, I mounted the three carbon blocks of Professor Hughes' microphone on, not as Mr Seabrook recommends, a plate of 3 inches diameter, but on a ferrotype plate about 6 inches by 4. This plate formed part of the top of a box, thus—

This form I found to be extremely sensitive, as a piece of cotton wool $\frac{1}{2}$ inch in diameter falling through 1 inch made a loud sound in the telephone. When the plate was lightly brushed by a camel's hair brush the sound produced in the telephone could be heard a yard away. A small clock placed on any part of the table on which the microphone stood could be heard distinctly; also a tap on the table, or even walking on the floor, each step producing a clang in the telephone. On speaking into the open part of the box the words spoken were distinctly and loudly heard in the telephone, notwithstanding the difficulty of hearing words spoken by one's self at the same time.

4. On the Action of Heat on some Salts of Trimethyl-Sulphine. Part II. By Prof. Crum Brown and J. Adrian Blaikie, B.Sc.

(*Abstract.*)

In the former paper on this subject, the authors stated that when hyposulphite (thiosulphate) of trimethyl-sulphine is heated to about 135° C., it loses sulphide of methyl to the extent of 23.58 per cent., the salt at the same time fusing to a clear colourless liquid. On cooling, this solidifies to a hard, very hygroscopic crystalline mass.