

3. Description of Messrs Adie and Son's Hermetic Barometer. By Richard Adie, F.R.S.S.A., Liverpool. Several Instruments were exhibited along with a Drawing.

The paper was read by Dr Macadam, who also read a letter from Professor Swan of St Andrews to Mr Adie, commending the instrument.

The Hermetic Barometer owes its name to the circumstance of its being hermetically sealed. It is one of the oldest forms of the thermometer, the spirit or alcohol kind, metamorphosed into a barometer. This is done by making the air-bulb at the top with rigid sides, while the alcohol cistern at the bottom has elastic sides. The action of changes of temperature on the upper and under cisterns is adjusted so that they shall nearly balance one another. The character of this barometer, compared with others, is, that it keeps pretty near the mercurial column, but is found to be more restless. The mobile nature of the fluid with which it is filled makes it very sensitive. When placed on the stage of a microscope, movements can be noted that do not change the mercurial column. Unequal heating from the hand, a fire, or the sun, disturbs these instruments; to remedy which they should be hung up for half an hour in the shade before reading. These barometers, including the glass-case in which they are placed for protection, are 11 inches long, 2 inches broad, and 1 inch deep. The divisions are made to read as inches, tenths, and fiftieths of an inch. There is a pointer for recording the last observation of the barometer. These instruments can be recommended as durable barometers; for once they are safely fixed in a suitable place, years will roll on without making much change on them. The Alcohol Thermometer, from which they are derived, is known to have worked for fifty years. The Hermetic Barometer has been used for measuring heights, for which it is recommended by the facility for carriage. Where it is desired, the length of the case can be shortened to 6 inches, by bending the spirit cistern up the back. Accuracy in measuring heights is only to be attained by attention to the corrections for temperature, which, for this kind of barometer, will require correction for each individual instrument.

After some observations by Mr Leslie, Mr Moore, and Mr Landale, the communication was remitted to a Committee.

The following Donations were laid on the Table, and thanks returned to the Donors:—

1. The Mechanics' Magazine, Nos. 97-99, inclusive. (New Series.) Presented by the Proprietors.

2. Journal of the Society of Arts, London, Nos. 415-417 inclusive. Presented by the Society.