29th of May, was shown in the Ante-room, and its mode of action was described.

The chief objects of the system were to do away with the objectionable boring rods, and to work only with a heavy tool head, so as to accomplish the depth with greater simplicity and speed, and consequently more economically, than under the ordinary system.

The machine consisted of a frame, supporting a vertical steam cylinder, acting like that of Nasmyth's hammer, raising and letting fall with great rapidity, and with any regulated length of stroke, a heavy boring head, of about 15 inches diameter, armed with a number of strong, variously-pointed chisels, the head being so constructed, with a twist in the square neck, and a ratchet and palls, that after each blow, the chisels moved onwards in a circle, so that no individual chisel should strike twice consecutively on the same spot.

By means of a small winding engine and a drum of 10 feet diameter, upon which the flat rope was coiled, the boring head could be drawn up out of the hole, with great velocity,—the head was then detached, an iron cylinder with an internal bucket,—and a clack, or valve at its base, was substituted and lowered into the bore-hole, where, on receiving a few strokes, as if in the barrel of a pump, the detached débris, pieces of rock, and even the broken points of the iron chisels, were drawn into the cylinder, which being rapidly drawn to the surface and emptied, was again lowered and the process was repeated, until the hole was cleared, and the boring head being again inserted, the work proceeded as before.

It was stated, that the machine had hitherto worked with great precision and facility, and was now cutting a hole of 15 inches diameter into hard compact rock, near Halifax, at the rate of 10 feet per day of 10 working hours. An account of this operation, which presented some novel and interesting features, was promised for the ensuing Session, when a full account of the construction of this ingenious machine would be given. Meanwhile the model would remain at the Institution, for the inspection of the Members and their friends.

After the Meeting, an improved Sliding Rule was exhibited, and explained by Mr. Charles Hoare, by whom the modifications had been devised: there was much that was new and useful in the arrangement, and the changes introduced, would evidently simplify the method of using an instrument scarcely yet sufficiently understood, and certainly not so extensively employed in making calculations, as it deserved.

The chief advantages of the New Rule, were a series of new gauge-points, by which brickwork of any thickness could be converted into standard, or cubic measure ;—a table of constants, to facilitate the forming of estimates, and the gauge-points for polygons and circles, very clearly tabulated ; with concise formulæ for the various operations, which, with the necessary gauge-points, were engraved on the face of the instrument, thus preventing the necessity for trusting to, or taxing the memory.

By some slight mechanical improvements it was also made useful in plan drawing, and the whole was evidently got up with the care and excellence of manufacture, generally found in the rules and scales manufactured by Mr. Tree.

May 29, 1855.

The Session was concluded by a CONVERSAZIONE, at which the President received the Members of the Institution, and a large circle of distinguished visitors, when the rooms were profusely decorated by works of art, with a very good display of interesting mechanical models.