

being heated were placed on this block, and by repeated blows driven into close contact with the mould.

Much difficulty was experienced in thus making up tires for large railway wheels, and the present machine was constructed for facilitating the process.

One end of the tire bar when heated is wedged into contact with one of four segments of a circle, of the required diameter, upon a cast-iron table, which is caused to revolve slowly; the pressure of a guide wheel at one side forces the tire bar to wrap round the segments, and to form the circular hoop required; its ends having been previously scarfed, are then welded together.

The tire is again thoroughly heated and placed around the four segments, which slide radially on the table, and are then simultaneously forced outwards by a motion of the centre shaft.

The tire being slightly chilled, and assisted by the swage and hammer, soon adapts itself to the segments, and forms a circular hoop instead of two semi-circles irregularly joined at their points of contact, as by the old system; it is then ready for being chucked on the lathe, and bored out before shrinking on the wheel.

It is apparent that a machine of this description becomes applicable to tires of any diameter, by having three or four sizes of segments adapted to the table. It is found to diminish the manual labour, and to prepare the tire more accurately than by the usual process.

A model of the machine, and a detailed drawing of the several parts, accompanied the communication.

“On the improvement of the Roads, Rivers, and Drainage, of the Counties of Great Britain.” By Robert Sibley, M. Inst. C. E.

Improve-
ment of
Counties.

The author had on a former occasion drawn the attention of the Institution to the subject of a Bill before Parliament, “for the better regulation and general improvement of the Drainage of the Country;” and at the same time pointed out the course pursued by the magistrates of the County of Middlesex, in procuring with his professional assistance an accurate account of the Rivers, Bridges, &c., hoping that it might lead to similar surveys in other counties.

In the present communication he investigates the nature of the works which each county may be expected to undertake, and the

means of accomplishing them economically, so that real public benefit may accrue.

The objects principally requiring the attention of the county magistrates, he considers to be, First—Facility of intercourse by the improvement of the roads, bridges, rivers, and canals. Secondly—Protection from injury by the passage of the waters from or through the county; and Thirdly—The removal of causes tending to vitiate the atmosphere, or to render unwholesome the water used for the support of human life.

All these points, which do not appear to have been fully comprehended in the Sewage Acts, are examined at length, and suggestions are offered for their regulation, with examples of the effects resulting from their neglect.

The advantage of placing the water-courses of the country generally under a well-regulated system of management, is insisted upon as the most effectual mode of guarding against the destruction of property, and not unfrequently of human life, which ensues from the effects of sudden inundations, such as have recently occurred in the county of Middlesex.

March 30, 1841.

The PRESIDENT in the Chair.

The following were ballotted for and elected:—Matthias Wol-verley Attwood, M.P., Samuel Collett Homersham, and James Munday, as Associates.

“Description of a new Universal Photometer.” By Dr. Charles Schaffhaeutl of Munich, Assoc. Inst. C.E.

The inadequacy of the photometric instruments invented by Pictet, Rumford, and others, is universally acknowledged. The bromide of silver, as used by Sir John Herschell, although extremely sensitive, is only slightly affected by artificial light. New photometer.

These circumstances induced the author to complete the present instrument,* which he contemplated about twelve years since.

The intensity of the undulations of gaseous fluids, as well as that of the air, is proportional to the amplitude of the oscillations, or more properly to the square of the amplitude.

* The instrument was constructed by Mr. E. M. Clarke, 428, Strand.