

XVI. "On a Standard Voltaic Battery." By LATIMER CLARK, C.E. Communicated by Prof. Sir WILLIAM THOMSON, F.R.S. Received June 19, 1873.

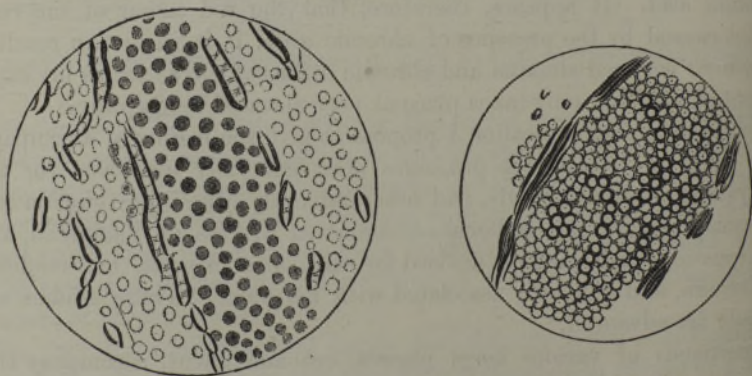
This paper is a revised version of a paper read last Session. (For Abstract see Proceedings, vol. xx. p. 444.)

XVII. "Note on High-Power Definition as illustrated by a compressed *Podura*-scale." By E. B. BEAUMONT, F.R.S., and Dr. ROYSTON-PIGOTT, F.R.S. Received June 19, 1873.

Nothing in microscopic matters has ever afforded us such complete satisfaction as the following result of a very fine definition, accomplished by means of a Gundlach German  $\frac{1}{16}$  immersion lens, corrected by a new method, which Dr. Pigott at present delays publishing in the hope of further improvement, but which he is willing to exhibit at his house.

A *Podura*-slide \*, fortunately strongly protected with a thick glass cover, having accidentally been subjected to so considerable a pressure as to crush out the structure of a large scale, upon bringing it, by haphazard, into the field of view with a magnifying-power of about 2000 diameters, exhibited a structure indicated by the woodcuts here given, and

*Podura*-scale.



drawn, in the presence of the writers, at Dr. Pigott's house by the accurate artist Mr. Hollick, deaf and dumb and a rapid delineator without the camera. Mr. Beaumont's surprise and admiration equalled that of Dr. Pigott. This circumstance will excite no surprise when it is stated that for four years the spherules of the *Podura* have been generally denied and warmly disputed. In ordinary cases a crushed scale shows nothing; and as glasses are usually corrected to show the illusory spines or markings, these spherules are concealed.

\* *Podura Deggeria vel domestica*.

The idea conveyed was, that two layers of spherules (first detected by Mr. Beaumont within the tubes), like two confined layers of small shot, had, by compression, been forced and largely spread out into broader layers. It was thought also that detached portions resembled long tubes or puckers filled with spherules exactly fitting them. The spherules appeared perfectly spherical, but somewhat unequal in size.

In the general flattened and extended surface of the compressed and disintegrated scale the spherules appeared dark blue or red, according to the slight change in the focal plane, and in a still lower plane white.

In the adjoining uninjured scales long strings of beads were seen, like necklaces of coral, here and there sharply bordered with black lines, apparently denoting tubes of membrane or puckers enclosing them like a tube. Between these strings of spherules peeped forth others of a light orange-colour.

The slide was an old one and well known. The mass of the crushed scale occupied a much broader space than any of the scales.

XVIII. "On the Accommodation of Vision, and the Anatomy of the Ciliary Body." By ARTHUR TREHERN NORTON, F.R.C.S., Lecturer on Anatomy at St. Mary's Medical School. Communicated by Dr. SIBSON, V.P.R.S. Received June 5, 1873.

(Abstract.)

This paper is to show that the increase in the convexity of the lens, when accommodated for near vision, is effected by compression of the equator of the lens by an erectile cushion composed of the ciliary processes turgid with blood, the ciliary muscle being the motor agent; also that the iris aids accommodation by increasing its rapidity, but that accommodation of vision can be effected slowly without the assistance of the iris.

The author states that, by dissection of human eyes, he has determined the existence of an erectile mass attached to the interior surface of the ciliary muscle from which the ciliary processes proceed, and that in dissections of injected specimens the vessels of the ciliary processes and of the erectile mass can be seen to pass through and between the fibres of the ciliary muscle near to the apex of that muscle.

From the festooned appearance of the ciliary processes when uninjected, and from their greatly increased size when injected, he concludes that the ciliary processes, and the mass from which they project, are erectile, and are capable of undergoing a great alteration in size, the erection being due to compression of their veins by contraction of the ciliary muscle.

In the anatomy of the ciliary muscle he gives, as the origin of that muscle, the middle fasciculus of the posterior elastic lamina of the cornea,