period obliterated, and the fibre thereby obtaining a clear border which completes its development.

This act is one which is believed to be met with in all vessels at their origin, but is frequently modified in certain vessels afterwards—viz., in the *annular vessel*, according to Mohl, the rings of fibre in this vessel are formed by the union of one coil or coils of the fibre, in its early condition, and afterwards separating from the others, or adhering and becoming perfect rings in the interior of the vessel. In the *reticulated*, on various portions of the original spiral fibre, a granule becomes enlarged in the line, and forms the starting point for a branch of fibre, which connects the turns of the spiral together, in various portions, and in various directions. In the *dotted* and *scalariform* vessels, the fibres become so connected as to leave meshes or portions of the membranous wall of the vessel without any deposit within—and this spot so left, constitutes the *dot* in the former, and the *linear marking* seen on the walls of the latter. This dot is plain in all such kind of vessels, excepting those found in woody Exogens, where it possesses (from some slight difference of structure) a central mark, making it analogous to that on the woody tissue of coniferous plants, with which the author thought it identical in structure, and probably in function, but only of a smaller size.

The paper was illustrated with numerous diagrams representing the successive stages of the minute process described.

XVIII.—ON THE STRUCTURE OF THE MACULA LUTEA OF THE HUMAN EYE.*

By Dr. Grube of Königsberg.

THE yellow spot in the human eye is situated on that precise point of the retina which answers to the posterior point of the axis of the eye, and is, therefore, the only part of the retina in which the eye perceives with perfect distinctness (in *direct* vision) the figures represented on it; since the remaining surface serves, as is well known, only for very imperfect (*indirect*) vision. Of the structure of this yellow portion, which is so much more delicate than the rest of the retina, that, from its susceptibility of injury, it was for a long time conceived to be perforated, I have no precise knowledge. I have often examined it in the

* From Müller's Archiv. für Anatomie und Physiologie, Heft 1, p. 38, 1840.

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most fresh state I could select, with a power of three hundred linear, but could never arrive at a satisfactory result; and, indeed, I usually found the structure of the retina in the human eye, to be far less distinctly recognizable than in the eyes of animals recently killed. This indistinctness of the objects I conceived to be attributable to the decomposition which so speedily attacks the eye, since, in animals also which have been two days dead, the structure of the retina is no longer distinctly to be seen. The eye is decidedly that part of the body in which traces of incipient decomposition first display themselves; the cornea in a few hours after death acquires a folded aspect, and the eye appears as if it had lost a great part of its humidity.

I recently had the opportunity, through the kindness of the Counsellor of Medicine, von Treyden, to examine the eye of a man who had died a few hours before of rupture of the spleen;—the results of this investigation were so decisive as to afford me the greatest possible surprise.

The retina adhered so firmly to the vitreous humour, that it was impossible to separate at least the greater portion of the latter, except by actual cutting with scissors; while, it is well known that soon after death a fluid usually collects between the retina and the hyaloid membrane, which renders the removal of the vitreous humour from the retina extremely easy. It was already perceptible to the naked eye, that the place of the yellow spot arose in a conical form, considerably above the surface of the retina. The size of this elevation I was unable to measure distinctly. I was, however, enabled, with a magnifying power of three hundred linear, to perform one entire turn of the screw of the micrometer, in order alternately to bring into focus the highest point of the yellow spot, and the surface of the retina lying beneath it.

With the view of preserving the object as entire as possible, I did not compress it strongly, but placed over it a very thin plate of glass a quarter of an inch in size, in order to level the conical elevation. The appearance which the yellow spot now presented most nearly resembled the shagreen formerly used by stationers for the covers of cases, &c. Elongated, rounded particles, gradually tapering towards the middle, and about one-fourth or one-fifth the size of particles of marrow (*markkör-perchen*), arranged themselves together with great regularity on the remainder of the surface of the retina. They proceeded like radii towards the periphery of the yellow spot, became larger at that point, but less distant in their outline, and with them were associated the marrow-like particles of the remainder of the retina, in gradual transi-

tion. This point of transition (the circumference of the yellow spot) was not circular, but the marrow-like globules radiated rather farther in a star-like form at single points, which were not situated at regularly recurring distances. A complete measurement I was unable to effect.

I had the opportunity of submitting this observation to the Physician General, Dr. Linden, who expressed himself perfectly assured of its correctness. It appears to me to be so far important that it affords the means of a simple and mechanical explanation of the phenomenon, that a portion only of the retina, namely, that which answers to the posterior part of the axis of the eye, possesses the power of distinct vision.

Hints to Microscopists.

II.—ON THE CULTIVATION OF VALISNERIA, CHARA, ETC., FOR MICROSCOPIC PURPOSES.*

By Cornelius Varley, Esq.

I OFFER the following remarks as the result of my experience to those microscopists desirous of preserving the different *Charas*, *Valisneria*, and *Hydrocharis*, or Frog bit; in all of which the circulation may be well observed.

In cultivating these plants, it is only requisite to take notice of the circumstances under which *Chara* naturally thrives, and to imitate them as nearly as practicable.

Firstly. The *Chara* tribe is most abundant in still waters or ponds that never become quite dry; if found in running water, it is mostly met with out of the current, in holes or side bays, where the stream has little effect, and never on any prominence exposed to the current. If the *Chara* could bear a current, its fruit would mostly be carried on and be deposited in holes; but it sends out from its various joints very fine long roots into the water, and these would by agitation be destroyed, and then the plant decays; for although it may grow long before roots are formed, yet when they are produced, their destruction involves the death of the plant. In order, therefore, to preserve *Chara*, every care must be taken to imitate the stillness of the water, by never shaking or suddenly turning the vessel. It is also important that the *Chara* should be disturbed as little as possible, and, if requisite, it must be done in the

* In a letter to the Editor.