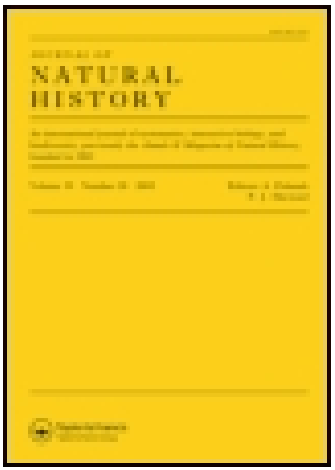

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XL.—*On Cell-development in Plants.*

By Prof. Arthur Henfrey, F.R.S.

To the Editors of the Annals of Natural History.

Gentlemen, April 18, 1856.

In a recent Part of the 'Transactions of the Microscopical Society of London' appeared a paper entitled "On the Formation and Development of the Vegetable Cell," by Mr. Wenham (Quarterly Journal of Microscopic Science, January 1856), a well-known microscopist. This essay, containing internal evidence of the author's want of familiarity with the subject treated, tended to revive the long-exploded hypothesis that vegetable cells originate as bubbles or vacuoles in a formless 'plasma,' into which cavities the true cell-contents penetrate after the formation of the cell. The paper would not have required any notice at the hands of physiological botanists, had it not been endorsed in some degree by the late President of the Microscopic Society in his Anniversary Address (Quarterly Journal, April 1856). The deservedly high authority of Dr. Carpenter as a physiologist renders it necessary that a protest should be entered by some one having practical experience in these matters. I have no hesitation in saying that Mr. Wenham's observations are faulty, consequently his conclusions useless. The objects selected for observation were *unfavourable*, and not favourable as he imagined; for young leaves of most flowering plants, in the stages figured by him, are not flat plates, but cones, or at all events solids having more than one thickness of cells in all three dimensions; therefore the view is confused by one layer lying behind another. The young leaves of most Mosses or Liverworts, the prothallia of Ferns, and similar structures composed of a single flat layer of cells, exhibit the phænomena much more clearly; but even in the young leaves of *Anacharis*, the application of dilute sulphuric acid and solution of iodine suffices to render the structures clearly distinguishable as quite different from what is represented in Mr. Wenham's drawings. The appearances presented by the protoplasmic structures in such nascent tissue are familiar to most of those who have practically studied these questions, so that it is merely necessary for me to state, from my own experience, that the objects observed by Mr. Wenham really offer no exception to the general rule, that the primary cell-wall is formed on the *outside* of the mass of protoplasm (*primordial utricle, protoplast, primordial cell, portion of cell-contents*, or whatever we may choose to call it), which is to form the active nitrogenous contents of the future cell.

I am, &c., yours truly,

Arthur Henfrey.