

tissue, and must transmit the natural, or, at most, the puerile sound. Indeed, if this theory be true, I see not how the bronchial respiration can ever be developed, unless the lower portions remain pervious while hepatization exists above; and, as inflammation and its consequences are much more frequent in the lower than in the upper lobes, bronchial respiration should be the exception rather than the rule, as it manifestly is.

The theory herein presented is sufficient to account for its presence whenever it exists, and for its absence when it is wanting; for its greater frequency and intensity when inflammation affects the upper lobes than when confined to the lower portions; and, if true, will justify sometimes a more favourable prognosis in cases of bronchial respiration than would be warranted if hepatization were present.

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ART. IV.—*On the Seat of the Vesicating Principle of Lytta Vittata.* By JOSEPH LEIDY, M. D., Prof. of Anat. in the Univ. of Penna. (Read before the Biological Department of the Academy of Natural Sciences, September 5, 1859.) With a wood-cut.

It often occurred to me that the vesicating principle of the blistering fly, *Cantharis*, *Lytta*, etc., was the product of some special organ in the insect, and was not diffused through the body of the animal. In polyps, bees, wasps, mosquitos, etc., we find the irritating agencies or poisons produced by particular cells and glands, not to mention the poisons and odorous principles found in special organs of higher animals. A few days since, observing numerous individuals of *Lytta vittata* feeding on *Amaranthus albus*, I collected a number, and at a leisure moment experimented with the different parts of the animal to ascertain if the vesicating principle was confined to some special part of the insect. I did not then recollect of having read of others who had performed similar experiments with the same object, but on examination, find in Pereira, under the head of *Cantharis vesicatoria*, the following remarks.

“The active and odorous principles of cantharides reside principally in the sexual organs of the animals. Both Farines and Zier tell us that the soft contain more active matter than the hard parts. It appears, also, that the posterior is much more acrid than the anterior portion of the body; and Zier says the ovaries are particularly rich in this active matter.”

Though I have long been familiar with the researches of Audouin on the anatomy of the Spanish fly, I remembered that he had made no mention of the source of irritating power in the insect. The anatomy of *Lytta vittata* is so nearly like that of the *Cantharis vesicatoria* as described by Audouin, that I shall say nothing about it except in the way of reference.

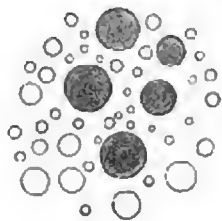
Without examining the work of Farines and Zier, I will detail the results of my experiments on the *Lytta vittata*, and leave it to others to compare them with the experiments of the former authors.

The *Lytta vittata* appears not to possess the peculiar mice-like odorous principle of the *cantharis vesicatoria*, at least I have not observed it in living or fresh dead specimens, nor in specimens dried and long preserved.

When the *Lytta* is caught, it exudes a clear yellow liquid, usually in one or two drops from a corresponding number of the knees, though smaller drops are not unfrequently seen to appear at other joints of the legs. This liquid appears to be the blood of the animal, for it is in all its physico-microscopical characters like this fluid obtained from any part of the body. If an elytrum is cut across, one or two drops of the same liquid exudes from vessels of the cut margin. The liquid forms a fibrinous coagulum, and contains colorless corpuscles, like the blood of insects ordinarily. The exudation occurring on the capture of the *Lytta*, I suspect to be the result of voluntary rupture of the parts, which is not extraordinary when we take into consideration the ease with which insects will sacrifice a leg. Be it as it may, the yellow liquid from any part of the body vesicates. Portions voluntarily exuded on the capture of the insect, others from the cut borders of the elytra, from cut extremities of the legs, and from the head, imbibed by separate portions of bibulous paper produced upon the inner side of my forearm a corresponding number of blisters. As the nettle among plants, and the larva of the egger moth have stinging hairs, I was led to try those of the *Lytta*. A quantity scraped from the elytra and other parts were mixed with cerate and applied to my forearm. They proved to be inert.

Half a dozen elytra cut into fragments and mingled with cerate produced a blister. This was the result of the contained yellow liquid or blood, for a nearly entire elytrum vesicated only at the point of contact of the cut border.

The intestinal canal with its leafy contents produced no effect. The muscles of the thorax, and the rete adiposa, or fatty matter common in insects, separately applied to the forearm produced no effect. The testicle and epididymis of the male likewise were inert; as were also two long tortuous accessory glands of the generative apparatus in the same sex. Two other accessory glands of the generative apparatus in the male, equally long and tortuous with those just indicated, are distended with an opaque white granular matter. This matter, mingled with cerate, was found to be highly vesicant. Viewed with the microscope it seems to be a consistent fat-like substance; appearing as spherules of various sizes with dark outlines, fainter concentric lines, and



others radiating, as represented in the figure. The spherules recalled to mind the appearance of the crystalline lens with its concentric layers and radiating fibres.

The ovary vesicated. This result also was obtained from the isolated eggs, crushed and mingled with cerate. A large pyriform sac attached to the generative apparatus of the female, contains a yellow sebaceous-like matter, together with a mass of hard opaque white substance. The former material appears to consist of spermatic matter, epithelial cells, and an albuminous substance; and it is inert as a vesicant. The mass of hard white substance is composed of the same fat-like spherules above described as existing in accessory glands of the male generative apparatus. I have occasionally observed it to be absent, and suspect that together with the other contents of the pyriform sac it is derived from the male. Mingled with cerate, I found it also to be a vesicant. My friend, Dr. Darrach, also applied portions of the two different substances, from the pyriform sac of the female generative apparatus, to his forearm. The fatty-like spherules alone vesicated.

Thus, as a result of the experiments above briefly detailed, the vesicating principle of *Lytta vittata* appears to belong to the blood, the peculiar fatty substance of certain accessory glands of the generative apparatus, and to the eggs.

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ART. V.—*Remarks on the State of the Capillary Bloodvessels in Inflammation.* By JOHN H. PACKARD, M. D., of Philadelphia.

OF all the points involved in the discussion of that most complex process, inflammation, none, perhaps, has been so warmly disputed, to so little purpose, as that above mentioned. Some pathologists have claimed for the capillaries a contractile power, which they say is exerted for a time, leaving them subsequently in a state of debility; others deny this contractile power, asserting that the vessels are from the very outset enfeebled. Others again have recourse to the idea of an active dilatation, which they attribute to an alteration in the electrical state of the atoms constituting the walls of the capillaries concerned.

Microscopic examination has often been resorted to for the purpose of clearing up this matter. But observers have not arrived at altogether uniform conclusions as to what is seen when artificial stimuli are applied to the living tissues. All agree that there is a period of dilatation of the capillary walls, and that there is a stagnation of the blood-corpuscles, when inflammation is thus excited; some, however, assert that the dilatation is preceded by contraction, while others see only the former phenomenon.