Facts and Arguments

OPPOSED TO

DR. BENNETT'S THEORY OF ORGANISATION.

BY

LIONEL S. BEALE, M.B., F.R.S.

DR. BENNETT does not explain more fully the peculiar views he entertains ; but refers me generally to the works of Martin Barry, Meissner, Nelson, Keber, and others (!), and then qualifies his reference by saying, "I do not wish him (Dr. Beale) to regard their *expressed opinions or theories* ; but the *facts* they have observed, and some of *which* I copied in my first lecture in the *Lancet*—Figs. 9, 10, 13, 14, and 15."

I know Dr. Bennett has copied the figures of Dr. Nelson ; but Dr. Nelson's explanation of his own figures is quite different from Dr. Bennett's. Dr. Nelson says nothing about molecules of the ovary coalescing to form the ovum ; nor can I find in his paper any fact, observation, or drawing, in favour of Dr. Bennett's peculiar theory.

Dr. Nelson thus describes the first figure Dr. Bennett has copied from his paper in the *Philosophical Transactions* for 1852, Fig. 44 : "Contents of the caecal portion of the ovary—*a*, the germinal spot, which is solid ; *b*, the germinal vesicle, *transparent, containing a fluid and the germinal spot*. The germinal particle is first thrown off, the swelling up of whose outer layer forms the germinal vesicle, while the central portion remains unaltered to form the germinal spot."

Dr. Bennett compresses this description and that of the two following figures into this sentence : "Figs. 9 to 12 represent the *histogenetic changes* (!) which take place among the *molecules deposited* (!) in the ovarian tube of the female worm, until the fully matured ovum passes into the oviduct." Nor does he insert one of the letters of reference ! "Among the molecules"! Every separate body represented in Figure 9 is an entire ovulum. Are these "*the molecules which coalesce to form the ovum*"? All interested in this question should compare Dr. Nelson's description of his own figures in the *Philosophical Transactions* for 1852 with Dr. Bennett's explanation of these same figures copied into the *Lancet* of January 3rd, 1863, page 4.

Dr. Bennett complains that I do not point out the *errors in detail*, and says that unless I abandon "*generalities*" and "*assertions*", and become "*more particular*" in my facts and arguments, he cannot propose to continue the "*explanations*" to which I invite him.

It certainly appears to me that many statements made by Dr. Bennett are themselves generalities and assertions, and of the most positive kind. This was why I begged for further information.

1. Surely it is but an assertion to say that molecules aggregate together to form vibriones, since neither these molecules nor this aggregation have ever been seen. Because particles of phosphate or carbonate of lime unite, coalesce, or become aggregated together to form larger masses, it by no means follows that living structures are formed by the aggregation of molecules. This is no argument at all,

until it has been shown that things living are governed by the same laws alone as things inanimate—that, for example, in the formation and growth of a living nucleus, and in the precipitation and increase of a particle of inorganic matter, the same, and only the same, forces are concerned.

2. It is an assertion, but simply an assertion, to say that the addition of the force we call *vitality* occurs *after* the molecules have become aggregated together ; and I do think that Dr. Bennett is bound, as a scientific man, to give facts and arguments in favour of so peculiar a view, or to abandon it. Would it not be very unreasonable to assert that a tree or an animal was first formed or built up, and was then made to *live*?

3. It is an assertion to say that the perfect worm (*ascaris*) is formed "*by a third act of histogenetic coalescence*." It is an assertion to say that histolytic molecules "*meet together, concentrate themselves, and form histogenetic molecules*." There is not a shadow of proof in favour of the view that any one molecule, resulting from the disintegration of any substance whatever, becomes a living molecule. A molecule of oil or phosphate of lime may result from disintegration ; but as such molecule, it can never live. A *living molecule* of oil, phosphate of lime, or any other substance having a definite known composition, is a simple impossibility. We might as well speak of a living mass of iron, lead, or other metal.

4. It is simply an assertion, and, I maintain, unsupported by evidence, to say "*the molecules of the ovary first coalesce to form the ovum*"; and Dr. Bennett must permit me to ask him the following questions upon this matter.

a. Does the assertion apply to ovaries generally, or to the ovary of *ascaris* mystax alone?

b. Does the entire ovary consist of molecules ; or is there any tissue?

c. Are the molecules free, or imbedded in any tissue?

d. How are the molecules of the ovary produced? Do they all appear at the same time? If not, how do they increase in number?

e. Do all the molecules of the ovary unite to form one ovum, or are many ova produced? If many ova result, what prevents them from becoming aggregated together to form *one large ovum*?

f. Can ova be produced in any other manner than by the aggregation of molecules?

g. Has Dr. Bennett himself *seen* the molecules in the ovary of *ascaris*, or studied the changes he describes in the constituent molecules of the ovum of this or any other creature?

h. Why does he term some molecules in the ova figured by Dr. Nelson *histolytic*, and others *histogenetic*, as Dr. Nelson himself neither used the terms nor described the changes as Dr. Bennett describes them?

I would also ask if the conclusions Dr. Bennett has arrived at with regard to the disintegration of spermatozooids and germinal vesicle to form *histolytic molecules* are derived from his own observation, or from other authorities, as I am not aware that any one has demonstrated that any molecules whatever result in this case. It is said that the spermatozoa *disappear* ; but Dr. Bennett is the only physiologist who has observed (!) that they become molecules.

Dr. Bennett asks : "How can solid matters grow or

increase in extent and density, unless from that very solution solid molecules (!) are thrown down which by aggregation produce bulk?" I answer that, even where pabulum does contain molecules, these molecules are prevented from passing into living matter. Insoluble inanimate particles may be precipitated from solutions, and will become aggregated together to form *inanimate masses*; but all matter serving to nourish living matter must be *in solution*. Where the food is insoluble, it must be reduced to a perfectly soluble condition; and any insoluble matters present are invariably filtered off before it is appropriated by anything living. The vibriones grow and multiply in a solution which is perfectly clear, and in which not a visible molecule besides themselves can be discerned.

These vibriones can hardly be termed *solid molecules*. What then, according to Dr. Bennett, is a solid molecule? Any one who was acquainted with the subject of cell-growth, as explained in modern text-books, might have advanced the same objections, and asked for further explanations upon the very same points. Dr. Bennett must bear in mind that the view he advocates has been advanced by him alone; and he must admit that the *onus probandi* rests with him. His view has now been before observers, both in this country and on the continent, for many years; and surely, if the statements he has made are founded upon facts capable of demonstration, they have been verified and received by many anatomists by this time.

Surely, all anatomists are not so biased as to be incapable of accepting what they can see or what can be shown to them. Dr. Bennett evidently considers that *my objections* result from prejudice in favour of my own views; and, as I am anxious that he should have the advantage of any adverse impression that can be excited upon this head, I will simply reprint Dr. Bennett's question and answer without comment.

"Again, may not Dr. Beale's avowed incapability of comprehending my views originate in the strong bias he possesses in favour of his own doctrines, in consequence of which he is unable to regard mine from an independent point of view? If so, he cannot be expected either to criticise or understand them correctly."

I propose to devote a separate communication to the important question of the development of vibriones, and I thank Dr. Bennett for expressing his views upon this point so definitely.

Illustrations

OF

HOSPITAL PRACTICE:

METROPOLITAN AND PROVINCIAL.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.

INFANTILE SYPHILIS.

Under the care of J. VOSE SOLOMON, Esq., F.R.C.S.

CASE. *Primary Syphilitic Ulcer of the Eyelid in an Infant Eight Months old, followed by Secondary Symptoms; Inoculation of the Breast of the Mother, followed by Secondary Symptoms.* On the 11th of September, 1860, an infant (L. L.), 8 months of age, was admitted under the care of Mr. Solomon, for a small unhealthy ulcer, with an indurated base, situated at the inner extremity of the lower lid, close to the roots of the eyelashes. It had been there a fortnight.

The child was somewhat strumous-looking, fairly nourished,

and could not be said to be unhealthy. It had not suffered from "snuffling" or any sort of disease. The mother, who brought the patient to the hospital, was in appearance healthy, and close questioning failed to elicit a syphilitic history. The father also was healthy, and denied having suffered from sore-throat, falling off of the hair, or disease of the skin. The ulcer on the infant was considered by Mr. Solomon to be syphilitic; but, in the face of the foregoing facts, soothing topical applications only were ordered. In three days later, no amendment having taken place, quinine was ordered, and the sore to be dressed with diluted citron ointment. Change for the worse, rather than the better, having taken place, inquiry was made whether any one had been in the habit of nursing or fondling the child who was suffering from a skin-eruption or sore-throat. It was replied, "Yes; her aunt is so affected." When this lady presented herself at the hospital, she was found to be covered with copper-coloured blotches; and her tonsils were fissured with ulcers, which afforded a discharge. These diseases had been attributed to bathing in the sea, and permitted to run a natural course. The inference Mr. Solomon drew from this examination was, that the aunt, in kissing the infant, had inoculated its eyelid. The inner extremity of the lid, close to the muco-cutaneous margin, is, according to his experience, more susceptible to primary syphilis than any other part of the palpebra. Any one who has once seen syphilitic tubercle of the eyelid could not mistake it for a primary ulcer.

Small doses of mercury were now given twice a day, in combination with Dover's powder and sugar. Nevertheless, on the 28th of September, six weeks from the first appearance of the primary affection, which had healed, the child's buttocks presented well-marked syphilitic blotches; and on the 23rd of October, a rather large, ill-conditioned, and deep ulcer had invaded the external labium. Syrup of iodide of iron had been ordered on the 19th, in addition to the mercury, which was given once a day only.

After a while the child's mouth presented a fissure at its commissure. An ulcer appeared on the mother's breast, and she had secondary symptoms.

The case of the infant was carefully watched by my friend and late pupil, Mr. Walker, now of the firm of Bull and Walker, of this town; and that of the mother by Mr. Baines, who attended the family, and to whom the case was referred for treatment.

REMARKS. The fact of this little patient having attained nearly the eighth month of its age before the appearance of the primary chancre, excludes all grounds for believing that the disease was contracted during the parturient process. How then was the inoculation effected, and from what source?

The answer is found in the common practice among some women of fondling children, by *sputtering* upon their faces, and, so strange is taste, upon the genitals and nates of infants. By these acts, the secretions of the mouth are frequently deposited upon the place of contact. It was probably in this way that the discharge from the aunt's tonsils was conveyed to the eyelid of her infant niece.

In opposition to this theory, we have the high authority of Dr. Diday, who declares he has been unable to discover evidence of the occurrence of a primary syphilitic sore as a result of inoculation from a secondary disease. The case before us is, in this respect, *unique*, inasmuch as the affection of the mouth of the suckling was a secondary non-congenital disease, and by it the nipple of the mother was inoculated. The specific character of that infection having been placed beyond dispute by the occurrence of secondary symptoms. We therefore conclude that the discharge from a secondary sore has given rise to a syphilitic ulcer, which, in its turn produced secondary symptoms.