

gularly stable in constitution—that they grow and multiply, but retain the same structure.

But now Weismann has to admit that, under certain conditions, the ids are modified in their structure. This admission indeed is contained in the idea that the individual hypothetical ids vary in their properties; and as, if we trace back these ancestral ids to their common source, they must all originally have been identical in structure, we conclude that at the same time they are both stable and capable of change in constitution. Here indeed is the crux of the theory. How are we to define and realize for ourselves the limits of alteration? Natural selection cannot explain the alteration, unless we fall back upon the far-away hypothesis of multitudinous separate acts of creation in the beginning of things—affording a large number of distinct idioplasms—and even this hypothesis does not work out satisfactorily.

In the example already given of crossing of the old-established breeds of barbs, fantails, and spots, we must imagine that all the ids of each breed have been, in the germ cells of successive generations, exposed to almost identical conditions, and, as a consequence, modified along the same lines. Exposed to the same influences in the course of many generations, it is almost inevitable that all must become modified, for if there were any large number of unaltered ancestral ids contained in the germ cells it would inevitably occur that sports and atavistic forms would frequently present themselves. But this does not happen. Each of these varieties of the pigeon breeds singularly true. How, in short, are we to picture some of them passing from germ cell to germ cell through all the long years in an ancestral condition? Put to this test, the theory breaks down; we cannot picture the necessary conditions. It is, in short, an absurdity to regard the nucleus of the germ cell as containing a colony of what are, to all intents and purposes, separate and independent individuals, some of which have for centuries retained properties of one order, some properties of another, to conceive the germ cell as a colony of individual living beings, for this is what the theory demands (4).

DRIESCH'S DEMONSTRATION OF THE INCOMPETENCY OF THE THEORY.—But it may be urged, What is the use of all this argument to kill a theory already dead? For dead it is, so far as regards the ids, and Weismann's theory without the ids is like Shagpat without the identical. The brilliant observations of Driesch (5), abundantly confirmed as they have been by others, foremost among whom must be mentioned Professor E. B. Wilson (6), of Columbia, and T. H. Morgan (7), of Bryn Mawr, show that the conception is untenable. If in a segmenting ovum we find that normally each of the blastomeres, or primitive segmenta-