

# SCIENCE

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## THE BASIS OF PHYSIOLOGICAL INDIVIDUALITY IN ORGANISMS<sup>1</sup>

THE world of living things exists in the form of what we call in every-day language individuals. We must first inquire whether this word "individual," as applied to organisms or their constituent parts, has any real scientific value. Etymologically the word means something which is undivided or can not be divided, that is, it implies the existence of a unity of some sort. But divisibility is as truly a characteristic of the organic individual as indivisibility, for new individuals arise by processes of reproduction from parts of those previously existing.

How then do we recognize an organic individual? The answer is not difficult, though in certain cases it may be difficult to determine whether a particular organic entity is an individual or not. It is a certain unity and order in behavior in the broadest sense which characterizes the individual, either living or non-living. In the organic individual, whether it is a whole organism or part of it, this orderly behavior consists in a certain orderly arrangement of parts in space and a certain orderly sequence of events in time. The problem of organic or physiological individuality is then the problem of the nature of this unity and order.

Many attempts at the solution of this problem have been made. The so-called vitalistic and neo-vitalistic theories postu-

<sup>1</sup> Read at a joint symposium of the American Society of Zoologists and Section F of the American Association for the Advancement of Science, Columbus, Ohio, December 30, 1915.

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