can give us no hint of the probable course of a similar event in the future. Experimentally, also, this position is untenable, since a number of the fundamental biological processes (photosynthesis in wheat and other plants, the phototropisms of certain plants and animals, etc.) have been shown to be accurately reproducible, and a number of other fundamental processes (photosynthesis of sugars, the photodecomposition of CO_2 by chlorophyll[1]) have been isolated and repeated in inorganic systems of known reproducibility. On the other hand, it appears definitely impossible to interpret biological phenomena in terms of the now known processes in inorganic systems, and the question must be regarded as unsettled. It may be, as von Uexküll has maintained, that the production of identical biological systems is fundamentally impossible. Certainly it is impossible to the experimental technique of the present day: synthetic men with interchangeable parts are still a dramatist's dream.

Many vitalists cite the apparently purposive actions of organisms in support of their contentions. This is logically justifiable only if it can be shown that identical organisms under identical conditions exhibit diverse purposes which are not even statistically reproducible. If the reactions, though purposive, are reproducible, they are not fundamentally different from the reproducible reactions of inorganic systems, and we may suspect hitherto unrecognized natural laws, of universal application, but illustrated only by the exceedingly complex systems which constitute organisms (precisely as the laws of electrostatics are illustrated only by electrified bodies). The view-point which considers biological processes to be reproducible, and controlled by natural laws of universal validity but limited illustration, is often called "vitalism," but the name "organicism" has been proposed to distinguish it from that vitalism which sees supernatural intervention in every action of a living thing.

It is interesting to note that Professor Niels Bohr, in his latest study of the foundations of the quantum mechanics, has proposed the introduction of teleological elements into the structure of the inorganic sciences.

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"A RARE PUBLICATION"

UNDER this title Mr. Wm. J. Fox[1] has given some notes on the "Transactions of the Natural History Society of Queensland, Vol. 1, 1892–94."

Such notices as this usually invite the making of a search and often result in the valuable disclosure of copies in unexpected places. Attention is therefore called here to the fact that the journal is to be found in several libraries in Australia.

In a late catalogue by E. R. Pitt[2] copies are listed for the following:

The Commonwealth Parliament, Canberra.
Australian Museum, Sydney.
Linnaean Society of New South Wales, Sydney.
Mitchell Library, Sydney.
Royal Society of New South Wales, Sydney.
Royal Society of Queensland, Brisbane.
Public Library, Adelaide.
Royal Society of Tasmania, Hobart.
Field Naturalists' Club, Melbourne.
National Museum, Melbourne.
Royal Society of Victoria, Melbourne.
Public Library, Perth.

Evidently only one volume of *Transactions* was issued.

VERONICA J. SEXTON
LIBRARY, CALIFORNIA ACADEMY OF SCIENCES

SCIENTIFIC APPARATUS AND LABORATORY METHODS

MANIPULATION OF THE RESEARCH MICROSCOPE

WHEN examining a smear preparation on a slide with the highest powers of the microscope (especially oil immersion) one makes a rather systematic exploration by starting at the top (or bottom) of the slide and working across in definite bands or areas.

In going from one band to another, the following procedure is usually taken: The operator selects a distinguishing or characteristic bit of material on the limit of one band and, using this object as a guide by continually keeping his eyes fixed upon it, turns the one knurled knob of the mechanical stage until another area of sufficient width (next band) comes into view. When he believes he has about the right width which his lenses will enable him to study at one time, he then uses the other knob of the mechanical stage to move said band left to right (or the reverse) for the exploration. This operation must be repeated until the entire slide is, of course, completely studied.

Such a procedure of slide examination after many hours becomes extremely tedious and rather subjec-

[1] According to a private communication from Dr. K. Meyer, of the University of Zurich.

[1] SCIENCE, n. s., 77: 1997, pp. 351–352, April 7, 1933.
[2] "Catalogue of the Scientific and Technical Periodicals in the Libraries of Australia," edited by E. R. Pitt, Melbourne, 1930, p. 707.