basis of pure morphology," and says: "No biological phenomenon is adequately interpreted or dealt with experimentally, until it has been considered with reference to the place which the organisms to which it pertains hold in the system of classification." That is, no generalization about the reaction of a species to light, or its chromosomal characters for example, can be accepted as fully valid until compared with the reaction to light or the chromosomal characters of all the other species of the genus, etc. All biologists with extensive field experience will have been struck with the "individualness" in many respects of the distribution, behavior and habit of the different species studied. "Each kind of organism has a chemistry to some extent unique," says Professor Ritter. The same appears to be true of its behavior, ecology, physiology, distribution. Yet nothing is more common, in the literature of present day biology, than generalization for the entire animal kingdom (sometimes even including man), on the basis of the experimental study of a single organism, perhaps among the Protozoa, Insecta or Aves!

Dr. Ritter calls attention to a fact which seems to have been missed by not a few biologists particularly in the fields of cytology and biochemistry, namely, that work in the "analysis" or "causal analysis" of organisms, in so far as the work really has an objective basis, is nothing more than a part of the description of the organism. In other words, analysis and explanation are only species of the genus description. "The sooner it is borne in upon the minds of all students of living beings, no matter with what aspects of such beings they may be occupied, that they are engaged in the great task of describing and classifying the living world; and, so far as 'pure biology' is concerned, are doing nothing else, the sooner will objective biology get itself set off from subjective biology and the sooner will philosophical biology become purged of the many morbific growths which now impair its health and mar its beauty."

"Never more than in the present day," says Professor Ritter, "when experimental research has found so wide and lasting, and, on the whole, beneficent a hold in biology has there been need of fidelity to description and classification." The emphasis is not so much on the shortcoming or even the incompleteness of the experimental method as on the great need for researches which shall inform us as to the "normal behavior of normal organisms under normal conditions."

Probably few would be willing at this stage of scientific development to go all the way with Professor Ritter in his apparently thoroughgoing skepticism regarding some of the popular biological concepts of the day, *e. g.*, those of the "germ plasm" and the "fit"; and it is quite certain that his implication of a lack of regard for and appreciation of the orderliness and unity of living nature on the part of the dominant school of biologists of the day is not wholly justified; but the note of warning he sounds as to the tendency "to neglect everything except the one or a very few things which the experimenter must of necessity make the object of each special piece of work" is one which deserves emphasis.

There are signs of a growing realization on the part of scientific men that recent tendencies to minimize the importance of description and classification in biology are unhealthful; and that with this realization is associated a tendency to utilize in greater measure the natural history mode of philosophizing of which Professor Ritter speaks and which he so highly recommends.

The war has taught scientific men, philosophers and people generally, the overwhelming necessity for right thinking about life and living, if we are to avoid additional cataclysms in the future.

Walter P. Taylor

Bureau of Biological Survey

SPECIAL ARTICLES

TO CUT OFF LARGE TUBES OF PYREX GLASS

On a number of occasions I have heard the remark from instructors in physics and chemistry, who do most of their own glass blowing, that they are unable to "cut" off squarely

large tubes of pyrex glass. Small tubes, up to about 20 mm. in diameter, yield readily to the usual file mark.

A well-known method for cutting large tubes of common glass is to make a file scratch round the tube, apply one turn of an iron wire held taut, and then heat the same to redness by an electric current.

This method, however, without modification, fails when attempting to cut pyrex tubes. The glass will simply not crack, and if the heating is pushed the hot wire usually sinks into the glass and finally fuses under the intense heat.

I was surprised recently to find that if the iron wire is replaced by a nichrome wire, say, of no. 14 or 16 gauge, the tube may be *cut* off by the incandescent wire in the same manner that a cake of soap is cut in two parts by means of a string.

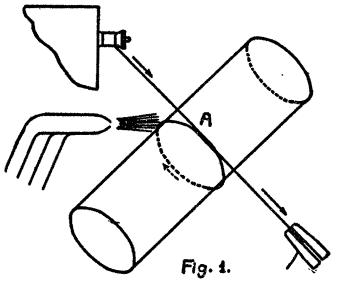

Fig. 1.

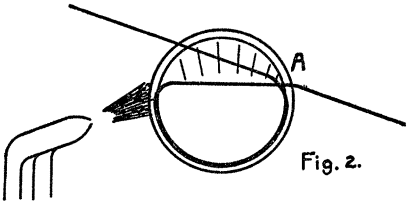

Fig. 2.

To insure success proceed as follows: Take a length of about one foot of nichrome wire, connect it up to a D. C. (or A. C.) dynamo current and include an adjustable tin resistance (for the current required must necessarily be large). The wire is held under tension by pulling on it with a pair of pincers, as shown in Fig. 1. Care must be taken not to let the two parts of the wire touch at *A*. When all is in readiness, turn on the heating current and adjust same by means of the tin resistance until the wire glows a white heat. If now a blast from a hand torch be allowed to play on the wire and glass the tube may be cut as shown in Fig. 2. Be careful not to let the flame strike the glowing wire where it is not in contact with the glass for the extra heat will burn it. The object of the blast is to aid in softening the glass, and also to distribute the heat along the tube and thus prevent the freshly cut edges from checking due to the otherwise intense local heating. The burr of glass that results from the cutting may be removed by a file or on the grindstone.

Recently the neck of a twelve-liter pyrex Florence flask was cut off with the greatest ease. The diameter was about 60 mm., and the wall thickness about 2.5 mm.

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THE ILLINOIS STATE ACADEMY OF SCIENCE

THE twelfth annual meeting of the Illinois State Academy of Science was held at Jacksonville, Ill., on March 21 and 22, having been postponed a month on account of the prevalence of influenza.

Important items of business transacted were the following: It was voted that the academy become affiliated with the American Association for the Advancement of Science, on the plan proposed by the committee on affiliations, of the American Association. It was voted that the academy become affiliated with the Division of State Museum of the Department of Registration and Education of the State Government. It was voted that the academy seek affiliated relations with science clubs in high schools, colleges and elsewhere in the state and a committee was appointed to perfect a plan for such affiliations. A committee on secondary-school science instruction was appointed. This committee is to make annual reports to the academy and to ask the aid and cooperation of the academy in its efforts to further the interests of such instruction. It was voted to offer for sale to libraries and individuals, full sets of the ten volumes of transactions now published at $5 per set.

Through the affiliated relation of the academy with the state museum, the former is practically guaranteed financial aid from the state for the