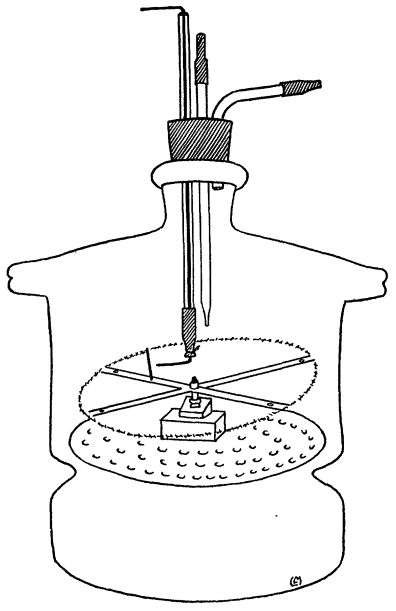
A DEMONSTRATION JAR FOR WHITE MICE

A MOUSE in a closed vessel of known capacity is a favored way of showing roughly some of the effects of inhalation anesthetics. Motor excitement and depression may be noted, but not well, for in the limited space the mouse has nowhere to run. For this reason we have mounted a simple tread-mill in a 5 liter desiccator, so arranged that the number of revolutions is recorded on a slow kymograph. The apparatus is easily constructed without expense and permits a number of interesting experiments and demonstrations.

The wheel is a circle of screen wire just smaller than the inner diameter of the desiccator, thumbtacked to two light pieces of wood at right angles to each other. Its bearing is a piece of glass tubing about 2 cm long pushed through a tight hole where the sticks cross. The ends of the tubing are fused down until they fit freely, but without unnecessary play, a small finishing nail. With a washer below this makes a very freely turning wheel, and when mounted on a block at about 30° to the horizontal the mouse has no trouble and apparently a good deal of pleasure in running it.

The recording device is very simple. A piece of glass tubing about 18 cm long is put through a hole in a rubber stopper in the top of the desiccator. The ends of this tube are fused down to fit loosely a piece of iron wire. A short piece of rubber tubing is fitted over the lower end of the glass tube and tied securely around the wire. This makes a gas-tight joint, and also serves as a spring to resist rotation of the wire. Each end of the wire is bent at right angles. The lower bend is hit by a pin on the revolving wheel, the upper end is connected by a thread to a damped-down muscle lever. Thus every revolution of the mouse wheel, in either direction, is made to record on



the kymograph, which of course also carries a suitable time tracing. Two other glass tubes through the rubber stopper allow gas or volatile liquids to be run in. An electrical contact is avoided in the recording mechanism because of the explosibility of several of the anesthetic mixtures.

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SPECIAL ARTICLES

VARIABILITY AND INDIVIDUALITY

IN 1920 the writer[1] published data which demonstrated that young animals of an inbred strain of mice showed a significantly higher percentage of growth of an inoculated tumor than did sexually mature individuals of the same strain. Strong[2] confirmed these results with different material and showed in addition that senile animals resembled very young animals in that they exhibited an increased tolerance of tumor implants as compared with that of young adults. These data were interpreted as indicating that the full expression of the genetic constitution of the individual was being assumed gradually during the period of infancy and adolescence, reached its most characteristic manifestation at the young adult stage and became less integrated and more decentralized during senility.

Warthin,[3] Child[4] and others have considered senility as a period of *involution*, and have looked upon individuality as a process directly measurable by the degree of manifestation of certain functions.

From evidence derived from a considerable mass of material it would appear that variability of a function or characteristic is a more fundamental indication of the nature of individuality than is the mean value of any physiological or morphological characteristic at any given time.

When, for example, variables of a genetic nature are reduced to a minimum for mammalian material by the use of closely inbred strains and when the

[1] *Jour. Exper. Zool.*, 31: 307–326, 1920.
[2] *Jour. Exper. Zool.*, 36: 67–134, 1922.
[3] "Old Age The Major Involution," Hoeber, N. Y., 1929.
[4] "Senescence and Rejuvenescence," Univ. of Chicago Press, 1915.