Our findings clearly support the "classical" theory of hearing in relation to the round-window's function. There being certain differences between the Hopkins procedure and our own, however, no factual contradiction need be inferred.

Our working conclusions are: (1) that our gum-plugs, which meet the round window in direct apposition but with no pressure, impede its normal oscillation and thereby impair acuity of hearing, as the accepted theory of cochlear function would lead one to expect; (2) that actual hearing is affected in the same sense by our procedure as are the electric pulses which can be picked up from cochlea and auditory nerve.

ELMER CULLER
GLEN FINCH
E. S. GIRDEN

UNIVERSITY OF ILLINOIS

FREQUENCY-DISTRIBUTION OF VOLUME OF ISLANDS OF LANGERHANS IN THE PANCREAS OF MAN, MONKEY AND DOG

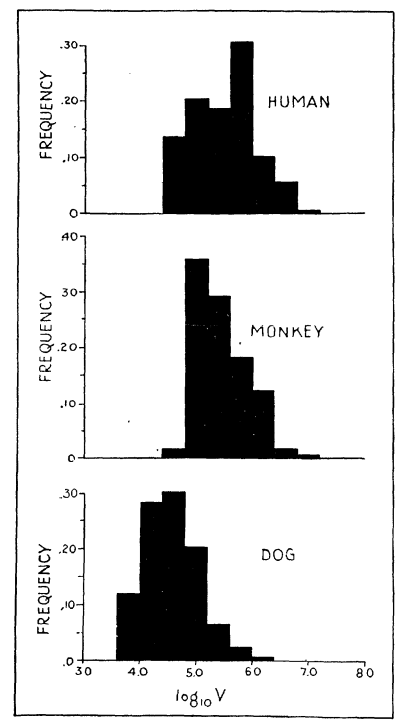
A METHOD of estimation of the volume (V) of Islands of Langerhans has been described elsewhere[1,2] and measurements of 100 islets from a monkey's pancreas presented. The construction of class-frequency diagrams, however, is not as simple as usual, because the selection of samples was necessarily not random; but methods of dealing with such samples with equal effectiveness have been given.[1,2] Relation (3) of the first paper may be used for the calculation of any of the moments, and in particular for the estimation of the frequency of occurrence of a volume within a given interval.

Islets were chosen for measurement by selecting from a cross-section one of the total number, Z, of islet particles. If α be the number of these belonging to the same islet and η be the number of serial sections containing some part of the islet, then the system of weights adopted is given by the respective values of $\frac{Z}{\alpha \cdot \eta}$, the justification for which has been discussed in the second paper.[2] Thus the estimated frequency (F) of occurrence of volumes within a given interval (I) is given by

$$F = \frac{\sum_{I} \frac{Z}{\alpha \cdot \eta}}{\sum \frac{Z}{\alpha \cdot \eta}} \qquad (1)$$

where the summation in the numerator is over values obtained when V is in I and that in the denominator is over the whole sample.

Frequency-distribution diagrams have been obtained in this manner from the data mentioned above as well as from similar data from the pancreas of a man and that of a dog. As these were all strikingly skewed we have presented instead the corresponding diagrams for the logarithm of volume in the text figure, where the unit of volume is the cubic micron (μ^3).



The lack of a prolonged tail to the left in each of the diagrams is worthy of note. According to the hypothesis that no islets are formed after a certain stage in life (possibly prenatally) we might expect to obtain diagrams of this sort, whereas just the opposite would be the case were islets formed throughout life. Furthermore, if the so-called geometric (or logarithmic) character of cell proliferation be maintained or at least that at all times for any two islets of the same pancreas the ratio of their rates of proliferation be equal to the ratio of their volumes, then we should find the same form of distribution of the logarithms of their volumes (as given in the diagrams) at all times with merely a possible shift in position of the whole along the axis of abscissae. It is interesting to note the equality of range in the figures given.

WILLIAM R. THOMPSON
ROBERT TENNANT
RAYMOND HUSSEY

YALE UNIVERSITY

[1] W. R. Thompson, *Biometrika*, 24: pp. 21–26, 1932.
[2] W. R. Thompson, R. Hussey, *et al.*, *Biometrika*, 24: pp. 27–38, 1932.