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Normal Duration of the Q-T Interval.

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The relation between the average heart cycle length and the Q-T interval was studied on 432 men, 425 women and about 200 children. With exceptions to be given in the final report, these subjects were free from heart disease. In addition, the principal finding for the normal subjects has been confirmed from the study, being continued, of 700 adults and about 200 children with heart disease.

The subjects were subdivided into groups according to sex and age. The principal groups are the younger adult males, the younger adult females, the older males, the older females, and the children. The adult subjects with heart disease were separated according to sex. In every group, without exception, the averages of the Q-T intervals at each cycle length fall closely along a curve represented by the empirical formula, $Q-T = K \log [10(C + k)]$. C represents the cycle length in seconds, while K and k are constants. For the younger male adults, K was 0.373, and for the females, 0.385. K for all the normal children was 0.376, but became 0.375 when girls, aged 12 to 14 inclusive, were eliminated. For elderly men, K is approximately 0.380, and for women, 0.390. The other constant k , is $+0.07$ for women, and is very close to, if not precisely at, this value for the other groups. For all groups with heart disease, the value of k remains substantially as given, whereas the value of K rises.

The cube root, square root and straight line formulæ proposed by Fridericia,¹ by Bazett² and by Adams,³ respectively, are inexact. Bazett's formula, using constant 0.39 or 0.40, gives values which are appreciably too low at short cycle lengths and too high at the long cycles. Fridericia's formula, using a constant of 7.95 proposed by Schlomka and Raab⁴ for young adults, gives values which are much too high when the heart is rapid and too low when the heart is slow. Adams' formula is still less applicable.

¹ Fridericia, L. S., *Acta Med. Scand.*, 1920, **53**, 469.

² Bazett, H. C., *Heart*, 1920, **7**, 353.

³ Adams, W., *J. Clin. Invest.*, 1936, **15**, 335.

⁴ Schlomka and Raab, *Z. Kreislauff.*, 1936, **28**.