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Respiration of Isolated Nerve.*

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Forty-three experiments on the rate of respiration of the lateral line nerve of the dogfish have been carried out by the tonometric method during the first 27 hours after isolation. Fenn's¹ statement that the rate of oxygen consumption of these nerves at 22.0°C. increases rapidly several hours after removal from the body was confirmed. This increase which begins 6 or more hours after isolation may reach a value nearly twice that of the initial rate of oxygen consumption at the end of 27 hours. During this time the rate of carbon dioxide production remains relatively constant. The apparent respiratory quotient, therefore, falls from 0.82 to 0.50.

Determinations of the carbon dioxide binding power of these isolated nerves indicated that this property is relatively constant during the first 12 hours. From 12 to 32 hours after isolation there is an enormous increase in the amount of carbon dioxide bound. This value becomes 500 volumes per cent at the end of 30 hours. Assuming the applicability of the Henderson-Hasselbalch equation, the pH is calculated to have increased from about 6.6 during the first 12 hours to 8.4 at 32 hours. This would indicate a liberation of approximately 16×10^{-5} molar equivalents of base.

Calculation of the true respiratory quotient gives values which increase from about 0.82 during the first 6 hours to 5.80 at the end of 24 hours.

It is possible that this high carbon dioxide production may be due to enzymatic or bacterial splitting of urea which is present in large amounts.² Experiments will be carried out to determine the effect of bacterial contamination and the source of the base liberated.

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¹ Fenn, W. O., *Am. J. Physiol.*, 1927, **80**, 327.

² MacCallum, A. B., *Proc. Roy. Soc.*, 1909, **82B**, 602.