

LETTER TO THE EDITOR

The Suprarenal Cortex and its Relation to the Biosynthesis of Adrenaline

SIR.—The exact method of formation of adrenaline in the body is still an open question, although it is possible that the primary amine, noradrenaline, is one of its precursors. Embryonic tissue in the suprarenal glands of man, cat, rabbit, guinea-pig and dog contains a high proportion of noradrenaline and a very small amount of adrenaline.¹ Large amounts of noradrenaline have also been found in the Organs of Zuckerkandl of children aged less than 70 days² and in the retroperitoneal tissue of many young animals³; this abdominal accessory chromaffin tissue lacks connection with the suprarenal cortical cells. In adult animals, however, methylation of noradrenaline is almost complete in the suprarenal glands when the cortex is large relative to the medulla (e.g., rabbit and guinea-pig), but when the medulla is relatively large (e.g., whale and fowl) methylation of noradrenaline occurs to a very small degree. It was suggested¹ therefore that the ratio of cortical size to medullary size may be related to the proportion of noradrenaline present in the suprarenal gland. This hypothesis has now been tested in lower vertebrates in which structures homologous to the adrenal of higher vertebrates remain separated throughout life.

In the dogfish, an unpaired inter-renal body representing the suprarenal cortex is quite separate from the chromaffin bodies (the rudimentary suprarenal medulla), and it was of interest therefore to identify by chromatographic and biological methods¹ the pressor amines present in these suprarenal analogues. Both adrenaline (0.9 mg./g.) and noradrenaline (2.4 mg./g.) were found in extracts of the chromaffin bodies, but no dihydroxyphenylalanine or hydroxytyramine were detected. This result leaves no doubt that methylation of noradrenaline does not require cortical tissue. A recent finding that the Organs of Zuckerkandl in children aged more than one year contain both adrenaline and noradrenaline⁴ supports this conclusion.

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September 19, 1952.

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