

Normal urine appears to contain between 0.08 and 0.2 per cent. sugar. Urines which give only a slight reaction with Benedict's qualitative reagent give higher figures with this method, generally between 0.25 and 0.35 per cent. The data on the previous page from a human adult, kindly loaned by Dr. Bailey,¹ nicely illustrate several of the points in question.

The above results scarcely appear to support the recent conclusions of Taylor and Hulton² regarding the assimilation limit of glucose. If, however, only the twenty-four hour specimen of urine had been examined as in their experiments, the result would, no doubt, have been negative.

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Regeneration in the mesencephalon of *Amblystoma*.

By H. SAXTON BURR. (By invitation.)

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In April of the present year the writer published a report of an experimental study of regeneration in the forebrain of *Amblystoma*. The results showed that the removal of the cerebral hemisphere together with the end-organ normally connected with it (the nasal placode), was not followed by a regeneration of nervous tissue. On the other hand, when the cerebral hemisphere was removed, leaving the nasal placode in place as a functionally active organ, complete regeneration of the hemisphere occurred. It was concluded that the functional activity of the nasal placode provided the requisite stimulus, at first through some hormone reaction and later through the active ingrowth of the olfactory fibers, for the regeneration of the hemisphere.

This spring the same type of experiment has been performed with the ocular complex. *Amblystoma* larvæ were subjected to two series of operations. In the first the right eye and the underlying mesencephalon was removed. In the second the right eye was turned back with a flap of skin and the underlying brain removed, the eye being then returned to its normal position.

¹ See Bailey, C. V., PROC. SOC. EXPER. BIOL. AND MED., 1916, XIII, 154.

² Taylor, A. E., and Hulton, F., J. Biol. Chem., 1916, XXV, 173.

The results are briefly these. The removal of the eye and the brain results in the formation across the gap of the wound of a curtain of tissue in all probability derived from the ependymal lining of the neural tube. The ingrowing fibers of the optic nerve from the left eye apparently stimulate the tissue thus formed to regenerate to a considerable extent. At the same time forward growing fibers from lower centers also afford some stimulus for regeneration, as was shown in the case of the primitive pallium of the telencephalon. The tissue thus regenerated is very similar in its organization to that normally found, except that important optic areas are lacking. An analysis of the fiber tracts involved must be deferred until later.

The removal of the mesencephalon leaving the eye in its normal position results in an almost complete regeneration of the optic lobes. In one larva only a very slight defect in the right mesencephalon distinguishes it from a normal unoperated individual. The process is apparently a much faster one than it is in the case of the olfactory system for the complete regeneration has occurred at the end of some three weeks, while in the case of the cerebral hemispheres complete regeneration did not occur until the end of as many months. This is really not so strange as would seem on the face of it, because, as the writer has shown elsewhere, the optic sense becomes functionally active some time before the olfactory. The early activity of the eye would then result in an early stimulus to regeneration.

These results show, as in the former experiments, that functional activity of the end-organ normally connected with the brain affords the necessary stimulus to regeneration of the part of the brain removed.

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Conduction, excitability and rhythm-forming power of the atrio-ventricular connection in the turtle.

By **HENRY LAURENS.**

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As in the heart of the turtle *Clemmys lularia* and of the lizards *Lacerta viridis* and *agilis* (Laurens¹) the right and left parts of the

¹ Laurens, *Pflüger's Archiv*, 1913, 150, p. 139.