Specific scarlet fever horse antiserum, 1 :50, neutralized both toxins, 1 :1000, in intradermal tests made before immunization in 3 of the 4 children mentioned above. The 4th child was serum sensitive. This same horse antiserum (1 :50) failed to neutralize the toxin of a septic sore throat strain of *Str. epidemicus* (1 :500) in 5 children who had shown positive cutaneous reactions to sore throat toxin. Nor did it neutralize the toxin of an erysipelas strain of hemolytic streptococcus of the mucoid variety (1 :500) in intradermal tests in one child who had responded positively to the erysipelas toxin.

In this work we add another variation in cultural characteristics of scarlet fever streptococcus. Previous reports indicate that scarlet fever streptococci may or may not ferment mannitol and still produce a specific toxin. Similarly scarlet fever streptococci may become mucoid and encapsulated and still produce specific toxin. In the present work specificity of toxin is retained although the strain had lost its hemolytic property.

7050 P

Loss of Pupillary Light Reflex Resulting from Lesions in the Region of the Posterior Commissure.

H. W. MAGOUN AND S. W. RANSON.

From Northwestern University Medical School.

Systematic exploration of the interior of the brain in the region of transition between midbrain and forebrain has enabled us to trace the central path for the pupillo-constrictor reflex in response to light. This was done with a fine needle electrode accurately placed with the aid of the Horsley-Clarke stereotaxic instrument and the points stimulated were checked by subsequent microscopic examination. These experiments, which have been fully described elsewhere,[1] showed that the impulses responsible for pupillary constriction travel from the optic tract through the superior quadrigeminal brachium and pretectal region but not through the superior colliculus. There appears to be a partial crossing in the posterior commissure and another ventral to the cerebral aqueduct.

Taking advantage of the precise information thus obtained we have been able to obliterate completely and permanently the pupillary light reflex in both eyes by placing small electrolytic lesions in the

[1] Ranson, S. W., and Magoun, H. W., *Arch. Neurol. and Psychiat.*, in press.

pretectal region on each side of the posterior commissure. This was done in cats with the aid of the stereotaxic instrument. In these cats both pupils remained for weeks widely dilated and entirely unresponsive to light. That the sphincter nucleus of the third nerve was not damaged was shown by the fact that pupillary constriction still accompanied winking, the well-known lid closure reflex.

Four of these cats with complete loss of the pupillary light reflex are being allowed to live for a longer period of time in order to make sure that the loss is permanent. Three others were sacrificed after periods ranging from 3 to 7 weeks. Microscopical sections of the brains of these 3 cats showed that the lesions had been accurately placed on both sides of the posterior commissure in the pretectal region and that except for a small area near the midline in the most rostral part of the tectum the superior colliculi were intact. The superior quadrigeminal brachia, the lateral geniculate bodies and optic tracts had not been damaged.

These experiments confirm the conclusions drawn from the stimulation experiments that the pupillary light reflex is mediated through the pretectal region and not through the superior colliculus. The slight amount of damage to the rostral part of the superior colliculus we regard as inconsequential. But in order to remove any possible objection on this ground other experiments are in progress in which the effort is being made to abolish the pupillary reflex with still smaller lesions which do not in any way involve the superior colliculi.

7051 C

Changes in the T Wave of the Electrocardiogram in Acute Rheumatic Fever.*

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Transitory flattening or inversion of the T wave of the electrocardiogram has been found during the active stage of rheumatic fever by Rothschild, Sacks and Libman,[1] by Shapiro,[2] and by Master.[3]

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[1] Rothschild, M. A., Sacks, B., and Libman, E., *Am. Heart J.*, 1927, **2**, 356.

[2] Shapiro, M. J., *Am. Heart J.*, 1930, **5**, 504.

[3] Master, A. M., *Am. J. Med. Sci.*, 1931, **181**, 211.