

found in control pieces of cornea. In infected and uninfected bits of cornea, definite evidence of growth of epithelial cells was frequently seen. The results of this work, including observations obtained through the use of tissues and plasma from immune animals, will be described in detail in a later communication.

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Respiratory Quotient of the Brain.

H. E. HIMWICH AND L. H. NAHUM.

From the Department of Physiology, Yale University School of Medicine.

We have studied the respiratory quotient of the brain of dogs by analysis of the blood entering and leaving that organ. Under amytal anesthesia, except for one animal, the superior longitudinal sinus of large female dogs was exposed and a sample of venous blood was drawn from it simultaneously with one of arterial blood from the femoral artery. The blood samples were analyzed for carbon diox-

TABLE I.
Respiratory Quotients of Intact Animal and of Brain.

Condition of Animal	Air R.Q. of Intact Animal	Blood R.Q. of Brain
Fasted 2 days	0.75	1.03 1.01
Fasted 2 days. No anesthetic.	0.77	1.06 0.97
Phlorizinized	0.69	0.97 1.02
Depancreatized	0.67	0.94 1.00
Depancreatized and Phlorizinized	0.69	0.96 1.00 1.00 0.99

TABLE II.
Respiratory Quotients of Brain.

No. of Animals	Condition of Animal	Number of Observations	Average R.Q.
4	Normal	7	0.99
1	No anesthesia	4	1.04
4	Phlorizinized	12	1.00
4	Depancreatized	11	0.99
1	Depancreatized and Phlorizinized	4	0.99
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14		38	1.00

ide and oxygen by the method of Van Slyke and Neill. The respiratory quotient of the intact animal was determined on samples of expired air collected before the blood was drawn.

In Table I are presented typical observations of a group which are summarized in Table II. 38 observations of the brain were made in 14 dogs and the average of the respiratory quotient was 1.00.

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The Meaning of Bier's Spots.

PEYTON ROUS AND H. P. GILDING.

From the Rockefeller Institute for Medical Research, New York City.

By vital staining with highly diffusible dyes we have found that sudden reductions of the blood volume lead to readjustments whereby the organs essential to the maintenance of life and to recovery continue to be well served by the circulation but at the expense of unessential ones, both visceral and peripheral.¹ The animals studied were white cats, rabbits and rats. The heart and lungs, the alimentary tract throughout its length (inclusive of the tongue and the gall bladder), the liver, pancreas, red bone marrow, and the respiratory muscles suffer practically no deprivation, even when the depletion has been pushed so far as to endanger life; whereas the skin and the voluntary muscles in general, the omentum, fat depots and urinary bladder are greatly neglected. One would expect the effective circulation through the spleen to cease, as does indeed happen. All the other neglected organs develop an ischemic patching except the bladder, which suffers as a whole. That in the skin resembles the so-called Bier's spots, blanchings noted in engorged human skin deprived of circulation. Our further work indicates that it is identical therewith.

Bier's spots appear gradually and enlarge by peripheral extension and coalescence. The ischemic patching of animals also develops gradually in skin from which the blood supply has been not quite all cut off; and the patches appear and spread as do Bier's spots. These latter are pallid, irregular, sharply outlined blotches on a congested skin, while the ischemic patches occur as similar areas devoid of stain, though scattered through a tissue which becomes well colored despite the reduced circulation. These differences are incidental to

¹ Reported at the Association of American Physicians, May, 1928.