at the stage of the first maturation spindles; this gave rise to the X6 series with evidence of partial rejuvenescence. The third pair was cut at the stage of the second maturation division and this gave rise to the X7 series which showed the same rejuvenescence as the normal ex-conjugant from the same source.

Many more experiments of the same nature are now under way and must be carried out before conclusions can be drawn. These three cases indicate, however, that the absorption of nucleo-proteins in the cytoplasm and which occurred in all cases, is not, by itself at least, the secret of renewed vitality.

8 (1468)

The total carbonate content of the arterial and venous plasma in normal individuals.

By **R. W. SCOTT** (by invitation).

[*From the Department of Medicine, School of Medicine, Western Reserve University, Cleveland.*]

In the course of some observations on the respiratory disturbances seen in certain diseased conditions it became necessary for the sake of comparison to determine the total carbon dioxide of the arterial and venous plasma in individuals with normal cardio-respiratory mechanisms. In all the bloods of nineteen normal individuals at rest have been examined. In each case samples of arterial and venous blood were obtained within a few minutes of each other.

Method.—The arterial blood was obtained by direct puncture of the radial artery using a technique similar to that employed by Stadie.[1] The venous blood was collected without stasis from one of the large veins at the bend of the elbow. To avoid contact with air both samples were carefully delivered under albolene into paraffin coated centrifuge tubes and immediately centrifuged at high speed. One c.c. of the separated plasma was delivered under carbonate free ammonia water contained in a receiving cup

[1] Stadie, W. C., *J. Exp. Med.*, 1919, XXX, 215.

of the Van Slyke apparatus and the total Co_2 content determined by the method devised by Van Slyke.[1] The method adopted was considered to be more advantageous for my purpose than the widely used method of first exposing plasma to 5.5 per cent. of CO_2 and ascertaining the CO_2 combining power.

Results: The results presented in the accompanying table indicate that the total CO_2 content of the arterial plasma is a fairly constant figure, averaging fifty-six volumes per cent. The venous plasma is always a little higher than the arterial in individual cases, the discrepancy being from three to eight volumes per cent. This discrepancy has been found to increase if the individual is allowed to take some light exercise, such as walking, just before the blood samples are taken. Under these conditions the arterial figures remain about normal while the venous are from twelve to fifteen volumes higher.

THE TOTAL CARBONATE CONTENT OF THE ARTERIAL AND VENOUS PLASMA OF NORMAL INDIVIDUALS AT REST.

CO_2 reduced to 0°–760 mm. in 100 c.c. plasma.

Arterial	Venous	Arterial	Venous
c.c.	c.c.	c.c.	c.c.
62.0	66.0	55.0	61.0
57.8	64.4	58.0	61.4
54.0	61.0	57.5	62.8
59.1	67.2	62.8	65.4
54.9	62.2	53.4	60.0
58.1	64.2	59.0	65.7
2.7	59.9	60.3	67.4
57.5	61.5	54.9	62.2
55.7	61.0	60.5	68.9
51.5	59.9		

9 (1469)

The total carbonate content of the arterial and venous plasma in patients with chronic heart disease.

By **R. W. SCOTT** (by invitation).

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Twenty-eight determinations of the total carbon dioxide content of the arterial and venous plasma have been made on ten

[1] Van Slyke, D. D., *J. Biol. Chem.*, 1917, XXX, 347.