CO. If the animals survived, the blood was practically free of CO in from two to three hours.

The curve so obtained was relatively flat for the first half of the period of elimination. A dog with 80 per cent. of the hemoglobin combined with CO, at the end of an hour still showed 60 to 70 per cent. During the remainder of the elimination period the drop in the curve was rapid.

It is evident that considerable damage may be wrought even after the inhalation of CO has stopped.

The elimination of CO was studied in animals inhaling oxygen, carbon dioxide, and oxygen-carbon dioxide mixtures following gassing.

With the inhalation of oxygen the rapidity of elimination was increased to approximately double. The curve of elimination of CO from the blood still maintained its normal shape. Deaths from respiratory failure still occurred.

Inhalations of 6 per cent. carbon dioxide in air, increased the pulmonary ventilation, and thus accelerated greatly the period of elimination to one half or less of the normal. The curve of CO-hemoglobin in the blood tended to approach more nearly a straight line.

Inhalations of oxygen containing 6 per cent. carbon dioxide resulted in complete elimination of the CO from the blood in from 15 to 20 minutes. The curve obtained was a straight line.

With the inhalations of carbon dioxide death from respiratory failure was prevented.

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The influence of oxygen in expelling CO_2 from the blood.

By YANDELL HENDERSON and H. W. HAGGARD (by invitation).

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Considerable theoretical significance attaches to the interaction of oxygen and CO_2 in blood. That variations of CO_2 tension influence the capacity for oxygen is generally accepted. There has not been, however, universal agreement among observers

as to the influence of variations in oxygen tension upon CO_2 capacity.

Our experience has led us to believe that the quality of exhibiting this reaction depends upon the previous treatment of the blood. Thus in our hands freshly drawn dog's blood shows it when defibrinated, but not when oxalated. The following is typical of our results.

Equilibrating Gas Mixture	Defibrinated Blood	Oxalated Blood
Air plus 5.6% CO_2	53.5 volumes per cent. CO_2	55.0 volumes per cent. CO_2
Nitrogen plus 5.6% "	58.5 " "	55.0 " "

Experiments are under way to determine whether the influence of CO_2 upon oxygen capacity is likewise lacking in oxalated normal blood.

Variations within the body in respect to the capacity of the blood for interaction of the two gases would afford a possible ground for reconciling some otherwise difficult discrepancies.

112 (1572)

Observations on the connective tissue ground substance in living amphibian embryos.

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Results obtained from a study of the development of connective tissue in amphibian embryos, as presented in a previous communication,[1] show that the process is essentially in agreement with the intercellular theory of connective tissue formation.

The previous observations were made on preserved amphibian material. It has been found possible this spring to demonstrate the presence of a primary ground substance in various stages of living amphibian embryos. Living embryos, ranging from a late gastrula stage up to the free-swimming embryo, have been dissected under the binocular microscope and it has been possible in all stages to show, as was previously demonstrated in the prepared

[1] A report of this work was presented at a meeting of the National Academy of Sciences held at New Haven, November, 1919, and an abstract appears in the *Proceedings* of that Society, 1920, VI, 77.