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ART. LXIV.—*On Asphyxia.* By GEORGE PATON, M. D., Bowmanville,
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Asphyxia is the term employed to denote the mode of death, that we witness when an animal is deprived of atmospheric air. The function of respiration is arrested, oxygen ceases to enter the blood, and carbonic acid to be exhaled. What are the successive steps by which this phenomenon is produced, and what is the immediate cause of the extinction of life in asphyxia, are questions which Physiologists have deemed it of much importance to determine. Bichat considered that coma is produced and animal life extinguished by the continued afflux of dark venous blood to the Brain; and that the circulation ultimately ceases on account of the venous blood entering the coronary arteries, and paralysing the action of the heart.

But Drs. Williams and Kay advanced a different theory respecting the nature of asphyxia, viz. that it is not the injurious quality of the dark venous blood sent to the brain, but its diminished quantity, by which insensibility is produced; and that this also is the cause of the failure of the action of the heart. They consider that when the blood, on passing through the lungs, ceases to meet with oxygen, it stagnates in their capillaries, and is not sent forward to the left side of the heart in sufficient quantity to maintain its action, and afford a due stimulus to the brain, in consequence of which coma supervenes and animal life is extinguished, and shortly after this organic life ceases at the heart; but that the real and immediate cause of these phenomena, is the failure of the circulation in the capillaries of the lungs, from the non supply of oxygen to the blood. Hence on opening the thorax of a warm blooded animal that has died by asphyxia the lungs are found congested, and the right side of the heart and great veins much distended with blood, but the left side of the heart is comparatively empty.

As a difference of opinion still exists among physiologists on this subject, we have endeavoured to investigate the phenomena, by a series of experiments on cold blooded animals. And we have selected this class because in them the blood on leaving the heart, passes directly to the brain, a circumstance which enables