

origin in blood vessels and meninges. Nerve cells and apparently neuroglia cells do not survive. The wandering amoeboid cells we believe are of endothelial origin.

The well-known vagaries in duration of incubation periods and intensity of temperature reactions of typhus in guinea pigs render progress slow in these experiments. Our results so far prove that the micro-organism of typhus survives in first "generation" tissue cultures up to fourteen days.

These experiments with both diseases are being continued and extended, and in the case of typhus with other tissues than those of the central nervous system.

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### The endothelial factor in anaphylaxis.

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If the lungs of a normal dog are perfused with Locke's solution, followed by Locke's solution containing 0.25 per cent. to 1 per cent. horse serum, no recognizable pulmonary reaction takes place. The rate of perfusion flow remains constant on changing from Locke's solution to the dilute serum. The lungs collapse normally on releasing the tracheal clamp. No frothy fluid escapes from the trachea.

If the lungs of a sensitized dog are similarly perfused, marked pulmonary reactions occur. These reactions are:

(a) A 75 per cent. reduction in the rate of perfusion flow. This reduction reaches its maximum by the end of two minutes, with slight tendency to recovery after the third minute.

(b) An increase in the size and consistency of the lungs, with non-collapse on release of the tracheal clamp.

(c) The escape of large amounts of fluid from the trachea on releasing this clamp. If the perfusion is now continued,

fluid continues to pour out of the trachea almost as fast as it escapes from the efferent canula.

To our mind the increased capillary permeability thus demonstrated is the most significant feature of these reactions. We believe that increased specific capillary permeability will ultimately be shown to be the dominant fundamental factor in protein sensitization, to which all other anaphylactic phenomena are secondary. This view is in accord with clinical evidence.

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#### Types of canine anaphylaxis.

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The typical anaphylactic reaction in dogs is characterized by a sudden, pronounced fall in arterial blood pressure. The pressure is usually reduced to about 25 mm. Hg. by the end of ninety seconds. This typical reaction is demonstrable in practically all dogs tested from eighteen to twenty-four days after intravenous horse serum sensitization. Recovery usually takes place in from one to two hours, depending upon the severity of the reaction.

We have recently encountered an example of a second type of canine anaphylaxis. This was in a dog tested during the seventh week of horse serum sensitization. In this dog no change in arterial blood pressure took place for four minutes after intravenous serum injection. The pressure then fell slowly and irregularly, death occurring in nine and one-half minutes.

The thorax of this dog was immediately opened. The lungs were found almost non-collapsible, but could be readily collapsed on pressure. This partial pulmonary fixation passed off in about fifteen minutes. The blood was rendered non-coagulable by the reaction, but slight hepatic changes were noted at autopsy, and no duodenal hemorrhage. The pathological findings resembled those of guinea pig anaphylaxis.