The Electroretinogram During Temporary Occlusion of the Aorta

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Discussion.

Van Heuven: In view of the fact that artificial hibernation is sometimes applied in cardiological operations, would it not be interesting to study the behaviour of the EEG and the ERG in marked cooling of the test animal, with occlusion of the aorta?

Ten Doesschate: 1) When carrying out experiments with the micro-electrode in the frog retina, I have often been surprised at the long survival time (sometimes several hours) of the retina in the extirpated eye. This is easier to understand if one takes into account the fact that even in warm-blooded animals the retina is highly resistant to anoxaemia.

2) Have cats ever survived the experiments? And if so, was there ever any visual function left?

Dekking informed Horsten that by studying the pupillary reaction it can be decided whether blindness following anoxaemia has its origin in the retina or in the cortex, and asked Winkelman: Why should the anoxaemia be brought about by occlusion of the aorta and not by causing the test animal to aspire either pure nitrogen or nitrogen with a small percentage of oxygen?

Winkelman replied:

to Van Heuven: The experiments you mentioned have been partially carried out. For instance, the survival times of the EEG in oxygen deficiency and hypothermia are known.

to Ten Doesschate: In a number of articles on experiments carried out in co-operation with Ten Cate, and published in the Archives Internationales de Physiologie in 1952, 1953 and 1954, the results of occlusion of the aorta in a series of surviving animals have been described. The visual function remained intact for a remarkably long time.

to Dekking: In some animals which survived the occlusion experiments and became blind afterwards

the blindness was certainly of a cortical nature. We preferred anoxaemia by occlusion of the aorta because this did not affect the oxygen supply of the heart through the coronary vessels so that resuscitation was more likely to be successful.