the behavior of No. 39, birth of the second baby was sanguinely expected to occur promptly. At 9:00 a. m. the following morning (Nov. 5) the baby was found, still attached to the afterbirth, which the mother was handling and nibbling at but not eating. (It may be stated parenthetically that this same female failed to eat the placenta after giving birth the year previous.) The baby was dry, the placenta somewhat dry on the edge. Birth had therefore taken place some hours before, or 12 to 16 hours after the fetal heart rate had been taken. The baby's heart rate at 10:00 o'clock was 192.

The obstetrical question arises: does acceleration of the fetal heart rate presage impending labor? The answer must be left for further observation, easily carried out in the human. At present we know of no figures on the changes (or absence of changes) in the fetal heart rate taken for a week, let us say, before parturition.

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The Survival Period and Blood Pressures of Adrenalectomized Decerebrate Cats.

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In 1919 Bazett[1] described experiments on adrenalectomized cats showing that the time of survival after adrenal removal averaged 6 hours for decerebrate and 10 hours for lightly urethaned animals. Theoretically possible explanations, such as extra shock, hemorrhage, or pituitary injury in the case of the decerebrates, were advanced to explain this difference. It was emphasized that there was no immediate (within one hour) blood pressure fall even in animals surviving a few hours only. The present investigation to obtain experimental data to enable discrimination between the possible mechanisms for the more rapid death of the decerebrates, although so far unsuccessful in its aim, has disclosed facts pertinent to discussions in current literature.

Vincent and Thompson[2, 3] reported that adrenalectomy in decerebrate cats permitted survival for only ½ to 1 hour although control decerebrates lived "for several hours". Death in adrenalectomized

[1] Bazett, *J. Physiol.*, 1919, **53**, 320.

[2] Vincent and Thompson, *J. Physiol.*, 1928, **67**, proceedings.

[3] Vincent and Thompson, *Nature*, 1928, **122**, 998.

animals was caused by respiratory failure due, they believed, to removal of an hormone (normally carried by the lymphatics to the medulla from the adrenals) which they named "pneumin". In spite of the contradictory results of Florey, Szent-Gyorgi, and Florey,[4] Vincent and Thompson later reaffirmed their stand[5] although they increased the survival period to 1 to 2 hours after adrenalectomy They claimed that Florey *et al.* had based their criticism on too few experiments.

The adrenals in 30 cats, decerebrated by the Sherrington scoop method, have been removed at intervals varying from 1 to 18 hours after decerebration. Removal was by the lumbar route without asepsis. (In a few cases some antiseptic precautions were taken.) Death of adrenalectomized animals by respiratory failure was obtained only when: 1. the decerebration was unsatisfactory and itself a probable cause of death; 2. the trachea was occluded by mucus; 3. the animal had survived for at least several hours after adrenalectomy and was showing signs of circulatory changes. Only 3 of the cats survived less than 2 hours after adrenalectomy—½, ½, and 1 hour respectively. In these, death was preceded by obvious gastrointestinal disturbances (probably secondary to medullary hemorrhage) and was, therefore, not attributable to the absence of the adrenals. The average survival period (excluding these 3 but including animals subjected to various experimental procedures) was 8.5 hours after adrenalectomy. One-third of the animals lived 9 hours or more. The longest was 21.5 hours. Ten control decerebrates, with and without dummy adrenalectomies, averaged 18.5 hours of life although these included a number of animals which were killed when convenient.

The statement of Vincent and Thompson[5] that "there can be no doubt that if a cat be decerebrated and then, after 1 or 2 hours, the adrenal bodies be removed, symptoms of respiratory failure will not be long in appearing and the animal will be dead in an hour or so" is thus not confirmed.

Vincent and Thompson[6] claim that clamping of both the adrenal vein and the adrenal collateral circulation results in an enormous immediate fall in blood pressure. The low level persists for about 20 minutes or until the clamp is removed (if earlier than this). Recovery then usually takes place in another 20 minutes after which, if the clamps are still in place or if the adrenals have been removed,

[4] Florey, Szent-Gyorgi, and Florey, *J. Physiol.*, 1928, **67**, 343.

[5] Vincent and Thompson, *Nature*, 1929, **124**, 445.

[6] Vincent and Thompson, *Endocrinology*, 1930, **14**, 93.

the blood pressure falls again until the death of the animal in 1 to 2 hours. They compare this fall to that found by Bazett[1] although the latter never observed such an effect within one hour after adrenalectomy and the fall, when induced, continued until death.

Where blood pressure records were taken during adrenalectomies in the present investigation, it was found that not infrequently there was a small fall following removal of the gland. It was usually much less than 25 mm. Hg whereas Vincent and Thompson report 50 mm. Hg as an average value. In recovering from this drop when present the blood pressure usually reached a supernormal value before returning to its original level. It is possible that this is the same phenomenon as that described by Vincent and Thompson[6] although it is not so prominent and has by no means been invariably present.

A more direct experiment was also attempted. In a few cases all tissue was cut away from the adrenal gland except that immediately around the adrenal vein and artery at the hylus. Occlusion at this point then completely isolated the gland. That occlusion was complete was demonstrated by a typical adrenalin blood pressure rise when the thread was loosened after ½ to 1½ minutes. The experiment was done repeatedly on each animal. During occlusion there was at times a slight decrease in pulse pressure resulting in a small fall of mean pressure although the diastolic pressure remained constant. A similar fall in pulse pressure could, however, be obtained mechanically by occlusion of the vena cava. Since the circulation may be so easily affected during manipulation of the adrenal glands, the possibility of such a mechanical origin of the temporary fall of blood pressure can not be excluded. In view of this possibility, it should be noted that no fall was seen in these experiments when an occlusion series was finished and the adrenal tissue was completely ligated or the gland removed.

Based on both the direct and indirect experiments it is, therefore, problematical whether such a small and inconstant fall in blood pressure is significant.