tensor motoneurones during repetitive stimulation of the cerebellar vermis[5,6].

Actually the synaptic noise was found to decrease much during the initial phase of the hyperpolarization. It was also possible to penetrate in the RN region the axons which discharged rhythmically at 30 c/s or so. By the IP stimulation they were first activated with a short latency of 0.3–0.4 msec and thereafter were inhibited for the period of several ten-milliseconds, which corresponded to the initial phase of the hyperpolarization in RN cells. Correspondingly, measurement of the threshold for exciting these axons revealed the prominent excitability decrease in the IP region. It is quite likely that they are axons of the IP cells which discharge tonically and so produce sustained depolarization in RN cells.

When the stimulation was applied to the intermediate part of the anterior lobe of the contralateral cerebellum, similar hyperpolarization could be induced with much shorter latency, its smallest value being 2.2 msec. This latency of 2.2 msec would be accounted for, at least chiefly, by adding 0.7–0.9 msec for inducing IPSP in IP neurones from the cerebellar cortex[2] to 1 msec for evoking EPSPs in RN cells from the IP[1]. The longer latency in Figure A–D, 6.7 msec, could be explained by assuming the IP neurones were inhibited by transsynaptic activation of Purkinje cells through cerebellar afferent fibres as has been seen in Deiter's neurones[7].

Thus the essential feature of the cerebello-rubral system appears to be that the IP mediates tonic facilitatory influences upon the RN under inhibitory control by the cerebellar cortex.

Résumé. Dans les neurones du noyau rouge, il a été demontré par l'enregistrement intracellulaire que les potentiels hyperpolarisants de longue durée sont produits par la stimulation de la région du noyau interposé et du cortex cérébelleux. En changeant le potentiel de membrane de la cellule, l'amplitude de l'hyperpolarisation diminue ou augmente parallèlement avec celle du potentiel postsynaptique excitateur (EPSP). En conséquence, l'hyperpolarisation ne provient pas du potentiel postsynaptique inhibiteur (IPSP), mais d'une réduction de l'effet tonique facilitateur exercé par le noyau interposé sur les neurones du noyau rouge («disfacilitation»).

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Effect of Chlorpromazine on the Testicular Physiology in Rats

The interfering action of chlorpromazine, a tranquilizing agent with adrenal[1] and ovarian[2,3] functions, has been investigated. Several authors ascribe this interference to an action of the drug on the hypothalamus. In this paper, the effect of the same drug on testicular physiology is reported.

Experiments were carried out on a total of 21 adult male albino rats of 130 ± 5 g body weight. The rats were provided with a well balanced vitaminized diet and plain water to drink ad libitum. 14 of the rats were treated subcutaneously with 25 mg/kg chlorpromazine every second day for a 30-day period, and the remaining 7 were taken as the normal controls. At termination of the experiment, all the chlorpromazinized and normal control rats were sacrificed, and testes and seminal vesicles of the respective groups of animals were excised for comparative examinations.

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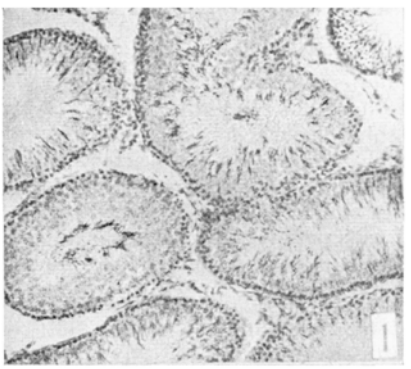

Fig. 1. Showing the histological appearance of testis in normal control rats. × 96.

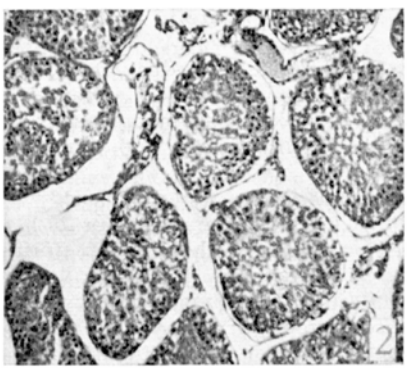

Fig. 2. Testis from the chlorpromazinized rat, showing atrophic changes. Compare with Figure 1. × 96.

In comparison with the normal controls, the testis and seminal vesicles of the chlorpromazinized rats showed atrophic changes. The histological picture of the testis was similar to that seen after hypophysectomy.

Hypertrophy of the adrenal cortex[1], as well as the pseudopregnancy state[2,3], has been noted after the administration of chlorpromazine in rats. Competitive gonadotrophin inhibition by an excessive production of ACTH in reserpinized (tranquilized) rats[4], and the blockade of the pituitary gonadotrophin release after chlorpromazine administration[5] have recently been discussed. Therefore, in this instance, the atrophic changes of seminal vesicles and testis with aspermatogenesis may be concluded to be due to the blockade of the release of pituitary gonadotrophin[6].

Zusammenfassung. Die Wirkung von Chlorpromazin auf die Hodenfunktion der Ratte wurde untersucht und dabei gefunden, dass Chlorpromazin eine Degeneration des Rattenhodens verursacht.

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PRO EXPERIMENTIS

A Technique for Successful 20 h Kidney Storage at 4°C

A technique for storing kidneys for 6 h at 4°C has been reported by DEMPSTER, KOUNTZ, and JOVANOVIC[1]. It was considered that with the same technique an extension of the storing period could be achieved. It was disappointing to find, however, that the technique which was suitable for 6 h storage was not consistently successful for 20 h storage. This communication describes the modifications required in our hands for 20 h storage at 4°C.

It was soon apparent that kidneys stored for 20 h in a cold room at 4°C were much firmer than after 6 h storage. It occurred to us that the problem of overcoming vascular spasm due to prolonged cold required more vigorous attention. Furthermore, it was considered possible that an excess of lactic acid may accumulate over a period of 20 h and accentuate vascular spasm. This obliged us to control the pH of all the fluids used in the technique.

Materials and methods. Greyhounds of weights varying between 20–25 kg were used. Kidneys were autotransplanted to the iliac vessels by a technique described previously by DEMPSTER[2]. The contralateral normal kidney was left in situ and was removed three weeks after the procedure involving storage and transplantation.

The pH of all solutions was measured. All solutions were buffered by bicarbonate to a pH of about 7.4 and contained 0.5 g streptomycin. An aliquot of the flushing solution was stored with the kidney at 4°C for 20 h. The pH of the flushing fluid after 20 h storage fell to 7. The vasodilators used were: 0.01 mg papaverine sulphate, 20 mg procaine hydrochloride, and 5 mg dipyridamole ('Persantin').

7 groups of experiments were performed:

Group 1. Six kidneys were stored for 20 h at 4°C and transplanted using the technique for storing for 6 h (DEMPSTER, KOUNTZ, and JOVANOVIC[1]). Briefly, this consisted of flushing by gravity the isolated kidney with a plasma-rheomacrodex-(Pharmacia Ltd.)-vasodilator solution at 37°C prior to and after the cooling.

Group 2. Five kidneys were stored for 20 h at 4°C and transplanted using the technique for storing for 6 h with the following modification: after the rewarming process and prior to performing the anastomoses, 9 ml of rheomacrodex and 1 ml of Novocaine at 40°C were injected up the renal artery and held in the kidney by placing a bulldog clamp on both the renal artery and vein.

Group 3. Five kidneys were stored for 20 h at 4°C and transplanted using a modification of the method used in Group 2: prior to the anastomoses 12 ml of rheomacrodex and 1 ml each of Novocaine, papaverine, and Persantin were injected up the renal artery and retained in the kidney.

Group 4. Four kidneys were stored for 20 h at 4°C and transplanted using the following modification: the kidney was flushed with fluid in a 20 ml syringe instead of flushing by gravity. The fluid consisted of rheomacrodex, plasma, and Novocaine 12:7:1. On removal from the cold room the kidneys were flushed by syringe with fluid at 4°C.

Group 5. Four kidneys were stored for 20 h at 4°C and transplanted using the same technique as was used in Group 2 but with the plasma omitted. Only rheomacrodex was used for flushing and only Novocaine was used as a vasodilator.

Group 6. Four kidneys were stored for 30 h at 4°C and transplanted using the following modification: as for Group 5 but with the fluids buffered to pH 7.4. The pH of rheomacrodex, Novocaine, papaverine sulphate, and Persantin at room temperature is 4.8–5.8.

Group 7. Ten kidneys were stored for 20 h at 4°C and transplanted using the following modification: all fluids used were buffered to pH 7.4. A total of 150 ml of fluid was used to flush out the kidney, i.e. a 1:3 plasma:rheomacrodex solution with 1 ml of Novocaine at 37°C. By placing bulldog clamps on both artery and vein at the end of the flushing, the kidney was left distended with this fluid. A similar solution was used to re-warm the kidney but with papaverine and Persantin added. Finally 9 ml of rheomacrodex and 1 ml of Novocaine at 40°C were

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