even in the absence of $Y$ chromosome. It further shows that there is something in the $Y$ chromosome which is necessary for the production of gametes but which is absent in the $X$ chromosomes and the autosomes.

A clone of a male plant conspicuous for its vigorous and extensive growth, when cytologically examined, has proved to be a triploid with 36 chromosomes (Fig. 1,*c*). Of these, one is large and very similar to the $Y$ chromosome observed in the diploid male, while all the rest are small and nearly alike. This $Y$, with which two other chromosomes are associated during meiosis, constitutes the $XXY$ trivalent. The $Y$ is clearly distinguishable from the rest of the chromosomes on account of its distinct size, shape and behaviour. Thus from a knowledge of the chromosome constitution in diploids and this triploid ($33\,A + XXY$), it is quite evident that the influence of $Y$ is so overwhelming that the triploid, in spite of the presence of two $X$ chromosomes, has become a perfect male plant. This lends further support to the suggestion made that the $Y$ chromosome contains some element which is necessary for the formation of gametes.

The occurrence of a triploid male reported here for the first time shows that polyploidy exists within the species *C. indica*.

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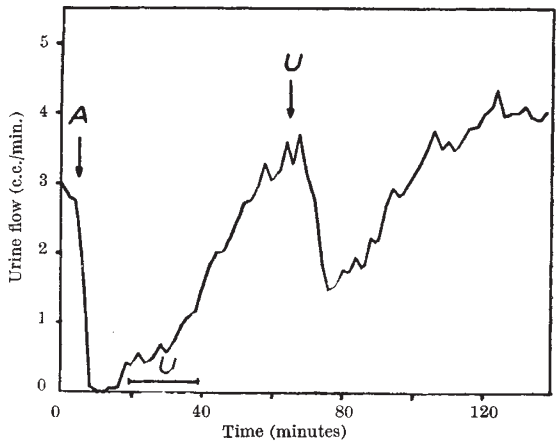
## Adrenaline-Antidiuresis in the Water-loaded Dog

Intravenous injection of small doses of adrenaline has been observed to cause a temporary reduction of the flow of urine in water-loaded dogs[1,2]. According to Pickford and Watt[2], this action of adrenaline is dependent on alterations in renal blood pressure and flow. We believe we have obtained evidence for the release of the antidiuretic hormone by moderate doses of adrenaline.

After a fasting period of about 18 hr., in the course of which water was given *ad lib.*, 30 c.c. of tap water per kgm. of body weight was introduced into the stomach of a dog. A similar dose of water was given 1½ hr. later. Urine flowing through the inserted catheter was collected in graduated tubes and measured every 2 min. After the beginning of steady flow, doses of adrenaline varying from 0·008 mgm. to 1 mgm. were administered intravenously. The dogs were unanæsthetized during the experiments.

Adrenaline in doses of about 0·01 mgm. induced a typical short adrenaline-antidiuresis as earlier described by Verney[1]. Injection of doses of 0·04–0·2 mgm. was followed by a biphasic antidiuresis. First, a rapid transitory inhibition of the flow of urine of the adrenaline-type appeared. Thereafter, a more prolonged inhibition, resembling that caused by the antidiuretic hormone[1], began and reached the maximum at about 20 min. from the time of the injection.




Water-diuresis curve from the bitch 'Diogenes', in a Pavlov stand. At *A* ↓, 0·5 mgm. adrenaline was injected intravenously. Urine was collected at *U*—, and re-injected at *U* ↓

If 0·5 mgm. or more of adrenaline was injected, the antidiuresis was either mono- or bi-phasic. In the monophasic reaction, as is seen from the accompanying graph, the rate of flow of urine rapidly decreased to zero, increased gradually, and reached the pre-injection level in about 40–60 min.

The mechanism of this antidiuretic effect of adrenaline is not yet clear. However, the form of the curves suggests the possibility that moderate doses of adrenaline may cause, besides a rapid inhibition of flow of urine typical of this substance, a release of the antidiuretic hormone from the posterior pituitary. To investigate this possibility, urine collected during the period of adrenaline-antidiuresis was intravenously injected into the same dog. This urine was observed to have a pronounced antidiuretic action, as demonstrated in the graph. Control samples collected during uninfluenced diuresis for similar periods did not produce any comparable inhibition of flow of urine. An inhibition of the observed magnitude can be obtained with a dose of 0·1–0·2 mgm. of adrenaline. However, the excretion of some 20–40 per cent of the total amount of adrenaline injected in the course of 20 min. appears unlikely. Adrenaline alone is therefore scarcely likely to be responsible for this antidiuresis. On the other hand, the antidiuretic hormone is in part quickly excreted and can be detected in small amounts of urine, as observed by O'Connor[3], whose technique was adopted in this study. Hence the effect of the urine excreted during the adrenaline-antidiuresis supports the view that the prolonged stage of this antidiuresis is due to the release of the antidiuretic hormone. Direct evidence is, nevertheless, still lacking. In view of the fact that small doses of adrenaline inhibit the release of the antidiuretic hormone as induced by various stimuli[1], the eventual converse effect of larger doses is of special interest.

More detailed description of the results will be published elsewhere.

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