laboratory. These substances are therefore somewhat less active on the comb than androsterone (60 γ), and particularly the diol (15 γ) obtained by hydrogenation of androsterone. In the meantime, I have examined these and related compounds also on the young castrated male rat. The first experiments have already shown that androstendione influences the seminal vesicles much more strongly than androsterone. In the following table, the results of a further series of experiments are shown, daily doses of 50 γ, 100 γ and 200 γ of the different preparations having been administered:

	Capon unit	Weight of the seminal vesicles in mgm.			Weight of the penis in mgm.		
	γ	50γ	100γ	200γ	50γ	100γ	200γ
Androstendione	100	25	51	285	85	100	150
Androstandione	100	16	27	51	57	89	92
Androsterone	60	11	14	17	46	60	65
Diol	15	14	25	40	68	89	98
Diol-monoacetate	15–20	13	—	—	64	—	—
Diol-diacetate	15–20	13	—	—	60	—	—

The rats were castrated at a weight of 70–80 gm., and only used 4 weeks after the castration. They received the above-mentioned doses once daily for 20 days. On the twenty-first day the animals were killed and the seminal vesicles and penis weighed. The weights of these organs at the beginning of the experiment were about 6 mgm. and 50 mgm. respectively. Three to ten animals were used for each experiment.

The table clearly shows the high activity of androstendione on the seminal vesicles and the penis. The increase of weight of the seminal vesicles amounts, for example, with a dose of 50 γ to three times, with a dose of 100 γ to five times and with a dose of 200 γ to twenty-three times that of the androsterone animals. Also androstandione of m.p. 132° shows a considerable activity on the sexual organs of the rat, similar to that of the diol. In this connexion it must be remembered that A. Ogata and S. Hirano[4] report the isolation of an active substance of m.p. 129° from testicles, which may perhaps be identical with androstandione. The testosteron recently described by David, Dingemanse, Freud and Laqueur[5] of m.p. 154°–154·5° resembles more the diol in its activity. The fact that androstendione, even in the absence of the substance *X* postulated by Laqueur and his co-workers, and in spite of its rather moderate activity on the capon comb, influences the sexual organs of the young male rat to an extraordinary extent, gives further support to the hypothesis of L. Ruzicka and A. Wettstein that androstendione, or a similar unsaturated ketone like 3-keto-17-hydroxy androstene, may be identical with the less stable male hormone or hormones of the testis.

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[1] Laqueur und Münch, *Ber. ges. Physiol.*, **61**, 3-4; 1931. Matsuzaki, *Jap. J. Med. Sci.*, 7, No. 1; 1934. Dingemanse, Freud und Laqueur, NATURE, **135**, 184; 1935.
[3] Gallagher und Koch, *Endocrinology*, **18**, No. 1, 107; 1934. See also A. Ogata and S. Hirano, *J. Pharmac. Soc. Japan*, **53**, 153; 1933.
[3] L. Ruzicka and A. Wettstein, *Helv. Chim. Acta*, **18**, 986; 1935.
[4] A. Ogata and S. Hirano, *J. Pharmac. Soc. Japan*, **54**, 199; 1934.
[5] David, Dingemanse, Freud and Laqueur, *Hoppe-Seyler's Z. physiol. Chem.*, **233**, 281; 1935.

A Crystalline Fluorescent Dehydrogenation Product from Vitamin B_1

THE production of fluorescent solutions on oxidation of vitamin B_1 (antineurin) has been indicated in these columns by Peters[1], but no crystalline fluorescent product has hitherto been reported.

An alkaline solution of potassium ferricyanide transforms the vitamin hydrochloride ($C_{12}H_{18}ON_4SCl_2$) into a pale yellow, sulphur-containing compound (crystals m.p. 221°, from chloroform) having, in neutral or alkaline solution, an intense blue fluorescence; it possesses all the recorded properties of the 'thiochrome' ($C_{12}H_{14}ON_4S$) of Kuhn and his colleagues[2], including a similar absorption spectrum. This result is to us the more interesting, as thermal decomposition of the vitamin also yields a blue fluorescent compound[3], $C_9H_{10}ON_4$, which may have a related constitution.

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[1] NATURE, **135**, 107; 1935.
[2] R. Kuhn, Th. Wagner-Jauregg, F. W. van Klaveren and H. Vetter, *Z. physiol. Chem.*, **234**, 196; 1935.
[3] G. Barger, B. C. P. Jansen, and A. R. Todd, *Chem. and Ind.*, **54**, 596; 1935.

A New Alkaloid of Ergot

SOME years ago, Chassar Moir[1] demonstrated by clinical experiments that aqueous extracts of ergot, so far from being valueless as maintained by pharmacologists, contain an oxytocic principle with a remarkably rapid action on the human puerperal uterus. This principle was isolated by Dudley and Moir[2] and found to be a water soluble alkaloid, which they named ergometrine. During the process of manufacture of this alkaloid, we have isolated in addition a new alkaloid which is isomeric with ergometrine and convertible into it. The relationship is apparently similar to that existing between the alkaloidal pairs ergotoxine–ergotinine and ergotamine–ergotaminine. We have accordingly named it ergometrinine. In the above-mentioned pairs, one member in each case is comparatively inert. Whether the new alkaloid has the same clinical action as ergometrine or is a relatively inert isomeride remains a question for clinical investigation.

Ergometrinine has the formula $C_{19}H_{23}O_2N_3$. It is fairly soluble in chloroform and has $[\alpha]_{5461}^{20°} = +520°$ (in chloroform $c = 1$). It decomposes at about 195°. It forms a crystalline nitrate $B.HNO_3$, hydrobromide, B.HBr and an acid sulphate $B.H_2SO_4$. The salts are easily soluble in water and give dextrorotatory solutions.

It is of interest to recall that ergine[3], $C_{16}H_{17}ON_3$, a degradation product of the ergot alkaloids, has a high optical rotation, $[\alpha]_{5461}^{20°} = +598°$ (in chloroform $c = 1{\cdot}5$) similar to that of ergometrinine, and it seems probable that the latter has the same configuration.

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[1] *B.M.J.*, 1, 1119; 1932.
[2] *B.M.J.*, 1, 520; 1935.
[3] Smith and Timmis, *J. Chem. Soc.*, 763, 1543; 1932. 674; 1934.