usually contraction of the ear vessels. Deep anæsthesia and a strong current favour dilatation—and this may be nearly maximal. The dilatation is largely due to a venous state of the blood, caused by cessation of respiration, but, though lessened, it occurs during artificial respiration. In this case also, it appears that the visceral and the cutaneous circulation may react in opposite ways.

The experiments were made on anæsthetised animals; the stimuli were at the rate of 35 to 40 interruptions a second of the primary current. Both vagi were cut.

A note on the melanophore dilator action of the pituitary.

By H. H. Knaus, N. B. Dreyer and A. J. Clark.

The writers compared the activity of a water soluble pituitary powder, kindly supplied by Messrs Parke Davis, with that of fresh gland extract made by the method of Burn and Dale. The water soluble powder was stated to have seven times the oxytocic activity of fresh gland, and this figure was confirmed on the isolated uterus of the guinea-pig. Experiments made on pithed cats, with the precautions described by Hogben, Schlapp and Macdonald(1) showed that 0·2 mgm. of the powder produced the same rise of blood-pressure as did 1·6 mgm. of fresh gland, that is, a ratio of 1 to 8.

The powder, however, had a much feebler relative action on the melanophores of the frog.

Dose of pituitary in mgm. per 25 grm. frog		0·03	0·02	0·01	0·005	0·0025
Reactions produced by fresh gland	Black	2	1	—	—	—
	Very dark	—	2	—	—	—
	Dark	—	3	5	—	—
	No visible darkening	—	—	2	4	—
Reactions produced by dry powder	Black	3	3	3	—	—
	Very dark	—	—	2	3	—
	Dark	—	—	3	2	1
	No visible darkening	—	—	—	2	4

Observations were made on 44 frogs, and the responses were divided into four classes according to their intensity. The frogs were kept exposed to bright daylight, on a white background, in dry glass jars.

The results are shown in the table, and indicate that the dried pituitary powder has more than twice and less than three times as strong an action as fresh gland.

In another shorter series of experiments another preparation of fresh gland was found to have only one-tenth the oxytocic action of the dried powder, but to have at least half as much melanophore dilator action.

We consider that these results provide strong additional evidence for the view that the melanophore dilator principle is distinct from the oxytocic and pressor principles.

(1) Hogben, Schlapp and Macdonald. Quart. Journ. of Exp. Phys. 301. xiv. 1924.

The expenses of this research were defrayed in part by a grant from the Government Grant Committee of the Royal Society.

The temperature coefficient of muscle viscosity.

By J. F. Fulton.

Attention has previously been directed to the fact[1] that when recorded with a myograph of high natural frequency the isometric twitch of intact skeletal muscle is characterised by a flat plateau which terminates abruptly (the "angle"). This sudden discontinuity together with the concave shape of the curve of relaxation suggests that the "angle" denotes the point of cessation of contractile activity and that the curve of relaxation represents the viscous return of the muscle to its resting shape. The effect of temperature on the rate of relaxation also favours this inference. In a large number of experiments in which the responses of the *same* preparation (intact gastrocnemius) have been taken at 10 and 20° the averaged Q_{10} of the interval between the beginning of the electrical response and the "angle" has been found to lie between 2·00 and 2·10, while the interval from the "angle" to half-relaxation has a Q_{10} between 1·3 and 1·4. Records from a typical experiment are plotted in Fig. 1.

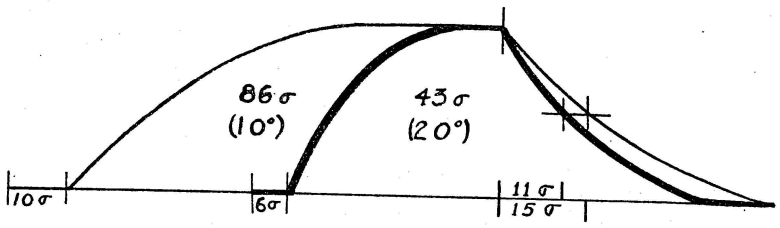

Fig. 1.

Two twitches from the intact gastrocnemius of a decerebrate frog at 10 and 20° are plotted on the same coordinates in such a way that their respective "angles" fall at the same point. The tension developed in the two was the same so that the only variable component of their

[1] *Proc. Roy. Soc.* 97 B, 424–431. 1925.