menon^{5,6}. It was shown that the hydrolysis of either of the α -fucosides was not depressed by the appropriate fuconolactone. Attempts to prepare suitable β -fucosides for enzyme work have thus far been unsuccessful.

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¹Conchie, J., Findlay, J., and Levy, G. A., *Biochem. J.*, **71**, 318 (1959).

²Conchie, J., Findlay, J., and Levy, G. A., *Nature*, **183**, 615 (1959).

³Kabat, E. A., "Blood Group Substances" (Academic Press, New York, 1956).

⁴Bettelheim-Jevons, F. R., "Adv. in Protein Chemistry", **13**, 35 (Academic Press, New York, 1958).

⁵Conchie, J., and Levy, G. A., *Biochem. J.*, **65**, 389 (1957).

⁶Findlay, J., Levy, G. A., and Marsh, C. A., *Biochem. J.*, **69**, 467 (1958).

Supercontraction of Wool Fibres and Creep in the Post-yield Region

It is now well established that hydrogen bonding takes a major role in the stabilization of wool keratin. This is well demonstrated by the recent finding¹ that wool fibres supercontract by 70 per cent of their length in 1 *N* hydrochloric acid containing 4 *M* concentrations of sodium iodide. In agreement with earlier workers², it was considered that the process took place in two phases corresponding to areas of strong and weak hydrogen bonding lying in series along the microfibrils.

I have been applying this technique to wool samples exhibiting marked variations in their post-yield creep properties and have noted two significant features.

Fig. 1. Typical kinetic contraction curves of single fibres drawn from samples A, B and C at 98.5°C. in 1 *N* hydrochloric acid containing 4 *M* concentrations of sodium iodide

First, as has already been observed, there are large variations between samples (Fig. 1) and between fibres drawn from the same sample. Secondly, the later stages of the 1 hr. supercontraction bear a relation to the post-yield creep of the fibres (Table 1).

Table 1

Sample	Creep constant (arbitrary units)
A	53.6
B	21.9
C	18.5

It appears, therefore, that the 'strong' hydrogen bonds responsible for the later phases of supercontraction may also account for a major part of the technologically significant variations in the creep properties of wool fibres³.

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¹Crewther, W. G., and Dowling, L. M., *Text. Res. J.*, **29**, 541 (1959).

²Griffith, J., and Alexander, A. E., *Text. Res. J.*, **27**, 755 (1957). Haly, A. R., and Feughelman, M., *ibid.*, **27**, 919 (1957).

³Ripa, O., and Speakman, J. B., *Text. Res. J.*, **21**, 215 (1951). Burley, R. W., and Speakman, J. B., *ibid.*, **23**, 702 (1953). Whiteley, K. J., and Speakman, J. B., *ibid.*, **30**, 46 (1960).

PHYSIOLOGY

Absence of Catecholamines in Cardioactive Acetone Extracts of Ox Spleen

It has been shown that acetone extracts of freeze-dried ox spleen are capable of stimulating hypodynamic papillary muscle¹. Evidence has been reported recently² which suggests that the cardioactivity cannot be explained in terms of choline or its esters, histamine, 5-hydroxytryptamine, adrenaline or noradrenaline. Further experiments reported below confirm the absence of catecholamines in an active extract.

The amplitude of cardiac contractions was recorded by a Cushny myocardiograph sutured to the right ventricles of artificially respired guinea pigs anaesthetized with pentobarbitone sodium (45 mgm./kgm. intraperitoneally). The animals were pretreated with atropine sulphate (2 mgm./kgm. subcutaneously), promethazine hydrochloride (5 mgm. intramuscularly) and ergotamine tartrate ('Gynergen') 0.15 mgm./kgm. intramuscularly. A small moistened cotton-wool cover was arranged to prevent drying of the thoracic tissues without interfering with the movements of the heart, lungs or myocardiograph. Injections of drugs were made into the right jugular vein in small volumes, approximately 0.1 ml., and washed into the circulation with 0.2 ml. normal saline.

Injection of 1–2 μ gm. noradrenaline caused transient positive inotropic actions which were approximately matched by 10–25 mgm. doses of spleen extract (corresponding to quantities of fresh spleen between 6.7 and 17.2 gm.). Following doses of dichlorisoprenaline, a specific antagonist to the inotropic and chronotropic actions of the catecholamines³, the effects of noradrenaline were almost completely abolished, whereas the inotropic effect of the spleen extract was not significantly altered (Fig. 1).

Further evidence that the inotropic principle in extracts of spleen differed from the catecholamines was obtained from paper chromatographic tests using Vogt's⁴ modification of the technique described by Crawford and Outshoorn⁵ using an atmosphere