(0·912 ± 0·018; 4 determinations), which were like those of left auricles. It follows that computation of potassium fluxes, especially in right auricles or beating auricle pairs[1,3], using the model based on single exponential exchange[2], will give results which are misleading.

Cocaine, quinidine and atropine decreased the inward and outward movements of potassium-42 both in beating right and quiescent left auricles. These drugs, acting on initially beating right auricles, had log molar dose-response curves which were rectilinear and parallel; cocaine was approximately equal in potency to quinidine, and atropine had about one-eighth of this potency. These results are consistent with the hypothesis that the drugs decrease the permeability of the cell membrane to potassium ions[4].

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D. A. Persoff

Department of Pharmacology,
London Hospital Medical College,
University of London,
Turner Street,
London, E.1. June 2.

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Substances depressing the Phagocytic Activity of the Reticulo-Endothelial System

In previous publications[1–3] we have reported the effect of various steroids, stilbenes and aliphatic hydrocarbons on the phagocytic activity of the reticulo-endothelial system, intimating that the strongest stimulants possessed high œstrogenicity. The present communication records the relative effect on phagocytic activity of the substances which we have found to depress the reticulo-endothelial macrophages.

The experiments were carried out on 125 male white mice (*T.O.* Swiss strain) of 20–30 gm. body-weight. Five of the animals were used to assess the effect of each substance on the phagocytic activity of the reticulo-endothelial system, each animal receiving one subcutaneous injection of 0·5 mgm. of each substance daily for six days. The phagocytic activity was then measured on the eighth day by the rate of disappearance of a known amount of carbon from the circulating blood[4], the procedure being as described in a recent communication[2]. The total body phagocytic activity or phagocytic index is denoted as previously by the symbol K.

The results are shown in Table 1. The substances in Group 1 were administered subcutaneously in aqueous solution. For this group 25 animals were used as controls. They were given carbon only and showed an average phagocytic index or K-value of 26.

The substances in Group II were each given in 0·05 ml. of arachis oil. For this group 25 animals were used as controls. Each received one subcutaneous injection of 0·05 ml. arachis oil daily for six days, then carbon on the eighth day. These animals showed an average phagocytic index or K-value of 13.

Compared with the control values, the results show that cortisone acetate, prednisone, prednisolone and 4-hydroxytetraphenylmethane are strong depressants of phagocytic activity, whereas the other substances shown in Table 1 are mildly depressant. None of the substances used possesses high œstrogenic activity.

Table 1. Substances which depress the Phagocytic Activity of the Reticulo-Endothelial System

	Substance administered	Phagocytic index (K value)
Group I		
Administered in aqueous solution, subcutaneously	Cortisone	7
	Prednisone	8
	Prednisolone	8
Control values for 25 untreated animals		26
Group II		
Administered in arachis oil, subcutaneously	4-Hydroxytetraphenylmethane	8
	Sitosterol	10
	Androstalone	10
	Deoxycortone acetate	10
	Ergosterol	10
	1-*p*-Hydroxyphenyl-1 : 1-diphenyl propane	10
	Lanosterol	11
	Cholesterol	11
	Stilbene	11
	4 : 4′-Dihydroxydibenzyl	11
	4 : 4′-Dihydroxystilbene	11
	3-(*p*-Hydroxyphenyl)-3-phenyl-*n*-pentane	11
Control values for 25 animals which received 0·05 ml. arachis oil subcutaneously once daily for 6 days		13

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T. Nicol
D. L. J. Bilbey

Department of Anatomy,
King's College,
London, W.C.2. July 8.

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Stomoxys sp. on Cattle in Uganda

It is common practice in Uganda to house cattle during the hottest part of the day, between 11 a.m. and 3 p.m. (approximately 10 a.m. to 2 p.m. sun time), primarily to protect them from irritation caused by the biting fly *Stomoxys* sp. Although no factual evidence is available, it is generally assumed that where cattle are left out continuously much of the observed loss of condition can be ascribed to this annoyance. Were this housing unnecessary it might be possible to avoid, not only the added expense, but also the inconvenience caused by extra herding on extensive ranching systems.

The predominant species at the Cotton Research Station, Namulonge, is *S. nigra* Macq. and, from numbers of adults recorded on tethered bait cattle, a diurnal cycle of activity is apparent (see Table 1), with minimum activity occurring between 11 a.m. and 2 p.m.

Regression analyses on the number of feeding adult flies on observed climatic factors indicate that saturation deficit accounts for the greatest part of the total variation of *Stomoxys* populations (R^2 =

Table 1. Mean Number of *Stomoxys* recorded on Two Bait Cows on 15 Occasions Between 17.3.58 and 5.5.58

Local time	a.m. 7	8	9	10	11	12	p.m. 1	2	3	4	5	6
No. *Stomoxys*	12·1	19·5	18·9	16·7	14·5	13·1	14·4	15·3	18·7	19·2	17·2	18·7