

others⁵ have observed that the anion influences the R_F of acetylcholine. It seems reasonable to conclude that the valid comparison is between the extract and acetylcholine treated in the same way, and that this comparison indicates the presence of acetylcholine in band 2. Pharmacological activity was found only in the region of the spot with R_F identical with that of acetylcholine after electrophoresis.

Hestrin's chemical method⁶ was applied to eluates from bands 1 and 2. The material from band 2 gave an absorption spectrum identical with that of acetylcholine; band 1 was negative for choline esters.

Paper electrophoresis was used further for examining the active substance separated in band 2. When acetylcholine bromide was added to an eluate of band 2, the mixture moved as a single band without separation. After treatment of unesterized homogenates with purified bovine acetylcholinesterase, band 2 was absent; on re-electrophoresis, the remaining band 1 showed the same mobility and colour reaction as choline.

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A Reliable Physiological Index for evaluating Summer Clothing

A SEARCH for a reliable physiological index to evaluate the comfort of summer clothing was begun during the Second World War and is still being continued. Many indices have been tried for this purpose¹; but all these can at best reveal significant differences between the clothed and the nude state, or between two grossly different types of clothing. In a preliminary investigation² this fact was confirmed.

We have now used an evaporative cooling index suggested by Paintal (personal communication, 1953) which is remarkable for its simplicity and reproducibility and which, in fact, reveals differences that are significant at the 1 per cent level between different types of clothing in everyday use. This index, which is based on the principle that human comfort is related to skin temperature, is expressed as the average drop in skin temperature of the trunk in degrees 6 min. after exposure of the trunk fully covered with sweat to a streamlined flow of air at 300 ft./min.

The experiments were carried out in an air-conditioned room at dry bulb $95.0^\circ \pm 1.0^\circ$ F. and 60 ± 3 per cent relative humidity. Shirts made of three types of fabrics were used: (i) white muslin kurta (a type of Indian shirt); (ii) olive-green bush-shirt of cellular material; and (iii) olive-green bush-

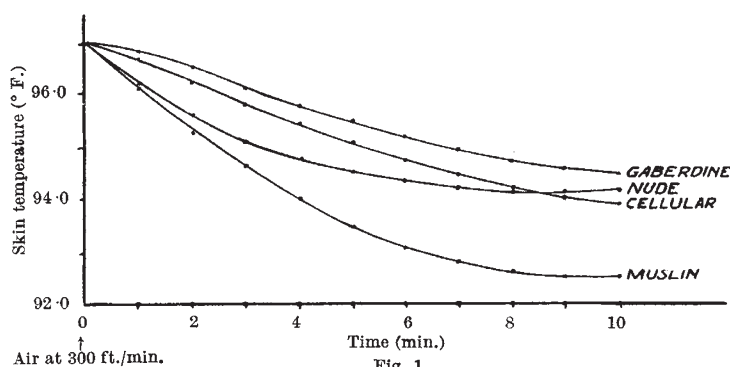


Fig. 1

shirt of U.K. jungle gaberdine. Olive-green drill trousers were worn in each case. Ten subjects were used for this series of experiments.

Thermocouples were strapped to four points on the trunk and the subject then donned the shirt under trial with the standard trousers. He then cycled on a cycle ergometer for 15 min., by which time his trunk was fully covered with sweat. The subject then sat in an erect posture on a stool facing (but shielded from) a source of streamlined current of air at 300 ft./min. Skin temperatures at four points were recorded and the air was turned on his trunk. Thereafter skin temperature was recorded at each point at intervals of 1 min.

Fig. 1 was plotted after averaging sixty readings on ten subjects. For purposes of comparison, the curves have been adjusted to start from the same initial temperature of 97.0° F., as the significant observation was the drop in skin temperature, and the exact initial temperature, therefore, really did not matter. As shown in Fig. 1, the fall in skin temperature by the sixth minute with subjects unclothed and wearing muslin kurta, cellular bushshirt and gaberdine bushshirt were respectively 2.7, 4.0, 2.3 and 1.8 deg. F. Statistical analysis of the whole of the results shows that differences significant at the 1 per cent level occurred between the three types of dresses. It is, therefore, evident that muslin would be the 'coolest' fabric to wear in summer—a point of interest since it has been in use in India for several centuries. The advantage of being mosquito-proof afforded by U.K. jungle gaberdine is probably outweighed by the resistance it offers to cooling of the skin.

Several different types of fabrics have now been tried out, and the results will be reported in detail elsewhere.

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