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Correspondence

Correspondents are asked to be brief.

Barrier Creams

SIR,—I am more than somewhat disturbed at your report "Was it a Drug?" (*Supplement*, 18 July, p. 64) in relation to the prescription of barrier creams. It was stated that a patient's "chronic dry eczema" was believed to be "aggravated by a substance present on the glass bottles he handled . . . at his job," and that the referees appointed by the Secretary of State for Social Services concluded that "the barrier cream constituted an effective prophylactic, and on the facts of the case (but not without some hesitation) decided that this . . . barrier cream was a drug which the executive council was bound to provide."

Before this report precipitates a rush of prescriptions for such "prophylactic" remedies, may I draw the attention of your readers to a paper published by Robinson and myself[1] entitled "Barrier Creams and Hand Cleansers in Industry"? This may be summarized as follows.

It was at one time considered that employers had a legal responsibility to supply barrier creams for the protection of their workers, and that they could be sued in the courts for negligence if such preparations were not readily available. This no longer applies.

It has been shown by investigative studies that no barrier cream on the market gives the degree of protection claimed by the makers.[2]

Patch tests to soap-containing barrier creams (not surprisingly) provide a very high percentage of positive reactions.[3,4] These suggest that some denaturing of the keratin can result from the long-continued use of such creams. The user may eventually complain of a feeling of slight soreness, which disappears on discontinuing application.

If the normal skin can be thus irritated, there cannot be many dermatologists who would be happy about the use of a "barrier" cream in the presence of "chronic dry eczema." It is admitted that the two preceding points do not apply to the "barrier" creams which do not contain soap, but there are many practical reasons why these are not commonly used.

The main reason for the continued popularity of soap-containing "barrier" creams is their efficiency as skin cleansers. But any of the industrial hand cleansers will do this job just as well, without the risk of irritation from prolonged contact.—I am, etc.,

RONALD SCUTT.

Royal Naval Barracks,
Portsmouth, Hants.

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1 Robinson, A., and Scutt, R., *Journal of the Royal Naval Medical Service*, 1961, **47**, 94.
2 Porter, R., *British Journal of Dermatology*, 1959, **71**, 22.
3 Kuske, H., Klayman, M., and Schwartz, K., *Dermatologica*, 1956, **112**, 316.
4 Tas, J., *Journal of Investigative Dermatology*, 1957, **29**, 223.

Prolonged Weightlessness

SIR,—Mr. F. G. St. C. Strange's observations (18 July, p. 162) are hardly in keeping with recent studies on bone demineralization during spaceflight. The more cautious approach of your leading article (4 July, p. 4) is welcome because studies on mineral metabolism in healthy subjects[1-4] have provided conflicting evidence on the effect of exercise and weightbearing, while observations during spaceflight have been complicated by varying intakes of calcium. At present, I believe the evidence suggests that limited exercise may prove to be vital in controlling bone reabsorption during prolonged weightlessness.

Using the technique of bone densitometry Mack and her associates[5] showed reductions in bone mass, based on the *x*-ray absorbency of the os calcis of each astronaut, to be 7·8% and 10·3% following the four-day (Gemini IV) and 15·1% and 8·9% following the eight-day (Gemini V) missions. The average calcium intake was 650 mg. per day during Gemini IV and 300 mg. per day during Gemini V. Following the 14-day mission (Gemini VII), in which regular in-flight exercises were undertaken and an average calcium intake of 1,000 mg. per day was maintained, the reductions in bone mass were 2·9% and 2·8% and were within the loss expected following an equivalent period of bed rest. Changes in the density of the middle phalanx of the little finger were, however, as high as 23·2% and 17·0% following Gemini V, and though in-flight exercise and a high calcium diet failed to have such a dramatic effect on these bones, the loss in each astronaut did not exceed 7% and 8% after the 14-day mission. The latter finding would suggest that attention should be given to hand exercises.

These studies emphasize the profound effect of weightlessness on bone metabolism but do not suggest that, in the absence of artificial gravity during spaceflight, severe skeletal pathology is inevitable. On the contrary, there is every possibility that demineralization may be controlled. Nevertheless, the problem is complicated by increased urinary calcium excretion, which may prove to be the more important consideration. Astronauts susceptible to the formation of calculi may have to be excluded from missions to planets beyond the moon.[6]

It is clear that a greater understanding of the control of the mineral content of bone and urine and the role of exercise in skeletal function are needed before extraterrestrial flights of many months' duration are undertaken. It is hoped that studies on bone metabolism in both man and monkey will be carried out aboard orbiting laboratories in the next few years, and the results of these investigations may suggest also a role for agents which impair intestinal absorption of calcium and phosphate and for hormones which may inhibit bone reabsorption.