prednisolone phosphate. Paper chromatographic evidence suggested the presence of a new compound more water-soluble than prednisolone phosphate. Aqueous solutions of a reaction-product isolated by freeze-drying an aqueous prednisolone phosphate solution saturated with sulphur dioxide had λ_{max} at 255 mμ. The infra-red spectrum of the solid gave no evidence for presence of a $\triangle^{1,4}$ compound, indicating the probability that only one double bond was conjugated with the 3-keto group in Ring A.

Two solutions, one containing 3·3 per cent prednisolone disodium phosphate and 5 per cent sodium metabisulphite, the other 2·7 per cent and 2 per cent, respectively, had rat-liver glycogen responses, after equilibration, consistent with the prednisolone phosphate contents determined by the enzyme method, which showed deficits of 90 per cent and 61 per cent respectively. The extent of the reaction is markedly dependent on pH, proceeding most readily at acid pH values. It is apparently completely and rapidly reversed in the pH range 10 to 12, since brief contact with alkali reverses the spectral shift and restores the deficit revealed by the enzymatic determination.

Acknowledgement. We are indebted to Mr. E. A. Woollett for determining the rat-liver glycogen responses.

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The Emulsifying Properties of Gum Acacia

Sir,—In the discussion of the paper "The Emulsifying Properties of Gum Acacia" presented to the British Pharmaceutical Conference at Newcastle upon Tyne (Shotton and Wibberley, 1960) I postulated that a seven times washed emulsion of heptane if subjected to further homogenisation would crack, as there would be insufficient acacia to stabilise the new interfacial area produced. I have now submitted the seven times washed emulsion of heptane to a second homogenisation, using the same hand-operated homogeniser. A more effective machine was not used as the volume of emulsion available was small.

The results are much as predicted. The emulsion issuing from the homogeniser had deteriorated, and globules of oil were clearly seen. On standing, the emulsion separated into three layers: an upper layer of heptane, a middle layer of emulsion, and the aqueous phase. It was not possible to separate quantitatively the heptane layer produced by the breaking of the emulsion, but a substantial fraction of the heptane separated after a few minutes, and the quantity increased on standing until only a small amount of emulsion remained.

Examination of the emulsion under the microscope immediately after homogenisation showed that the globule size range was increased from the 1 to 25 μ of the original washed emulsion to 1 to 150 μ or more, and the larger globules were more numerous. After 7 days the number of the large globules in the residual emulsion had decreased.

The events that took place on the second homogenisation seemed to be as follows. Many of the smaller globules passed unchanged through the hand homogeniser and remained as stable oil droplets. Most of the remaining globules were ruptured by shear, lost their stabilising film completely and coalesced to form the oil phase of the system. The remainder were not completely stripped of the protective film, and coalesced to form the large globules above 50 μ which on long standing cracked. This ability to produce large globules during processing gives some idea of the speed at which a ruptured acacia film is able to reform. The reduction of the surface area: volume ratio would allow some losses of film without reducing the amount of acacia available for film formation below the critical levels. Breaking of the globules at a later stage must be attributed to mechanical failure of the film when the globules are distorted by compression during creaming.

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December 5, 1960.

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