

those of the specialist journals covering the appropriate fields. It will therefore be necessary in future for those wishing to cover Antarctic aspects of subjects to ensure that they are aware of any papers in this *Bulletin*. The paper on "The Snow Accumulation Budget at Halley Bay and Associated Meteorological Factors", by D. W. S. Limbert, will be of interest to many glaciologists and meteorologists, while that on "The Sheathbill, *Chionis alba* (Gmelin), at Signy Island", by N. V. Jones, is the best general account of this species which is available. "Vector Mean Winds at the Argentine Islands", by B. D. Giles, although limited to visual theodolite observations during the period 1954-58, provides a useful summary of

upper winds. "Geophysical Investigations in the Scotia Arc and Graham Land", by D. H. Griffiths, is a preliminary paper outlining observations made so far which indicate that a most thorough and useful monograph should appear in the future.

Although the new series will mean yet another journal to be kept under review by interested scientists, the effort should be well worth while and it should serve to direct attention to the accomplishments of the British Antarctic Survey. The Editors are to be congratulated on the quality of presentation and at having kept the price down to the very reasonable level of 10s. per issue.

G. DE Q. ROBIN

PETROLEUM CHEMICALS: BULK DETERGENTS

THE familiar idea of detergent production in the United Kingdom is the washing powder or dish-washing fluid sold over the shop-counter and glaringly advertised in every available medium. This, however, is by no means the whole story. There are made available in the petroleum industry many chemical compounds which qualify as detergents and specialized products are designed for particular applications. In this field a considerable annual tonnage of detergents is sold in bulk, either direct by manufacturers connected with the petroleum industry or through local distributors, for industrial or non-retail consumption. Much of this material is in liquid form and is marketed in anything from a 1-gal. tin to a 15-ton road-tanker load. Such has been the extraordinarily rapid advances made in formulation, perfection and manufacture of these surface-active agents (known in the United States as 'surfactants') since the end of the Second World War that it is now claimed, not without good reason, that, as cleansers, detergents are more versatile than soap. Certainly this fact is clearly demonstrated in an article appearing in a recent issue of the British Petroleum Company's *B.P. Magazine* (Winter issue, No. 10; 1963), wherein several kinds of detergents and their diverse industrial and social applications are discussed.

One of the largest users of detergents is the textile industry. For example, raw wool, either used alone or blended with synthetic fibres, must be scoured to remove dirt and wool fat before, by a complicated process, it can be converted into yarn; formerly this was done with soap and alkali; detergents are now used for the purpose. Wool for carpets is often twice scoured with detergent before it reaches the loom. The finished article used to be cleaned by the laborious use of carpet soap, but the job is now done more effectively and thoroughly by appropriate 'shampooing' or cleansing detergents.

Laundries still rely to a large extent on soap in their operations, but detergents are widely used in certain cases, especially where softened water is not available or where

a particular form of soiling of the fabric is not susceptible to the use of soap. Examples of this occur from ordnance factories where woollen protective clothing gets liberally splashed with trinitrotoluene, and butchers' overalls covered with fat and other persistent stains. Again, the detergent can be used as an emulsifying agent and advantage is taken of this property in the production of 'waterless' types of handcleaner commonly used for cleansing the hands from grease, oil and other substances implicit in certain factory processes; the principle here is that the detergent mixes with greasy soiling, emulsifies in water, thus removing the contaminant from the skin. In the same category comes the invention and use of a special type of detergent concerned with removal of fuel-oil spillage at one of the British Petroleum Company's refineries, subsequent rinsing with fresh or sea-water completing the cleansing operation. This has had repercussions in the solution of problems raised by major spillages of oil in coastal waters and particularly on beaches. "The largest operation of this sort was probably the cleaning of oil from nine to ten miles of foreshore on the Isle of Wight resulting from a collision between two vessels in the Solent." This involved complete removal of oil from shingle beaches, rocks, concrete, wooden jetties and even beach huts where the gales had splashed them with the oily scum. It is stated that after this treatment, which took three months, people commented that they had never known the beaches so clean.

Finally, the use of special detergents for cleaning aircraft, both internally and externally, is now established practice in the maintenance programmes of many air-line corporations. Taking the overall picture of the detergent industry as it is now, in the United Kingdom the ratio of soap production to detergents is about 55 : 45; in the United States it is 30 : 70. There is still great research activity in Britain concerned with new products and new applications in the field of petroleum chemicals in which the properties of surface-active agents derived from petroleum figure prominently.

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'NUCLEAR' AND CYTOPLASMIC RIBOSOMES IN *B. MEGATERIUM*

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IT has been shown in recent papers^{1,2} that on lysis with a neutral detergent, lubral *W*, protoplasts of *B. megaterium* yield: (a) nuclear fraction containing all the DNA with some 'nuclear' ribosomes as well as the cytoplasmic membranes of the cell; (b) a cytoplasmic fraction contain-

ing most of the cell ribosomes and soluble RNA. The nuclear fraction can be divided by methods described² into the nuclear (DNA-containing) material, 'nuclear' ribosomes and membranes. It was shown² that with short times of incubation with a radioactive RNA precursor,