certain of the examples given by me this aspect is prominent and that it even initiated some of them. But it is not the essential requirement, which is, of course, the circumventing of the land ownership laws: without some such device, an agrarian revolution, expropriation and the rest, are sooner or later inevitable. There is no reason why the proposal should not apply to subsistence crop production; the general financial level would be lower and the operations of the corporation more modest, approximating to what would be done by a co-operative buying and selling society, composed of the tenants themselves. Organisations of this type were working well among the Bulgarian peasant proprietors before the War, and their success was not dependent on the fact that the peasant owned his farm.

At the same time it is clear that lack of capital in the Middle East is an obstacle to rapid development, for it also causes peasant indebtedness to the landlord-moneylender class. Dr. Warriner examines two sources of supply: the war-time sterling credit balances and oil royalties. Both are wasting assets, and both are likely in the present conditions to enrich the few. A speculative possibility briefly mentioned by Dr. Warriner is to form, perhaps under the United Nations, an international agency to promote investment and long-term economic development. This is, in fact, the public utility corporation referred to above, on a somewhat more ambitious scale.

The pamphlet sets a high standard for the succeeding ones. It is lucidly written and the author's personal knowledge of the area has enabled her to set out the essentials of a very complicated situation.

B. A. KEEN

THE MEDICAL NOBEL INSTITUTES, STOCKHOLM

THE Caroline Institute in Stockholm, in all but name the medical university of the Swedish capital, appointed a committee in 1945 for the planning and building of new laboratories for the three departments of the Medical Nobel Institute. The Department of Biochemistry was founded in 1937 under the direction of Prof. Hugo Theorell; in 1940, Prof. Ragnar Granit was appointed to a research chair in neurophysiology, established with the aid of a gift from the Wallenberg Foundation in Stockholm, and also supported by the Rockefeller Foundation; this became a Nobel Institute in 1945. At the same time, a third department of the Nobel Institute was created, in cell research, under the direction of Prof. Torbjörn Caspersson.

During the academic year 1947-48, the three departments have been moving into their new and spacious buildings in the 'medical city' which is being created by the Caroline Institute in north-west Stockholm on an old estate known as Norrbacka. The administrative centre, the library and some of the laboratories have already moved out to the new site. The Departments of Physiology and Pharmacology are expected to move out in the autumn.

The Medical Nobel Institute was formally opened in May by the Crown Prince of Sweden and dedicated to the Nobel Foundation by Prof. Bergstrand, president of the Caroline Institute. In addition to Swedish representatives from universities and

academies, Scandinavian, British and American guests were present. Great Britain was represented by Prof. E. D. Adrian, foreign secretary of the Royal Society. A dinner presided over by Dr. Ekeberg, president of the Nobel Foundation, concluded the ceremony.

In his speech, Prof. Bergstrand, president of the Caroline Institute, emphasized that the Caroline Institute needed full-time research laboratories engaged in work along the front lines of modern science, for its own sake as well as to enable it to fulfil the important task entrusted to it by the will of Alfred Nobel. The beautiful and well-equipped new laboratories, he went on to say, expressed the confidence of the Caroline Institute in the three directors appointed to lead them. Financially, the three laboratories were a joint effort: the buildings and part of the equipment came from the Nobel Fund, which also supported one of the chairs and part of its running expenses; the Government of Sweden supported the other two chairs and contributed to their annual budget; the Wallenberg and Rockefeller Foundations contributed generously to most items of the budget. Prof. Bergstrand concluded his speech by expressing the gratitude of the Caroline Institute to the donors, and, finally, extended a hearty welcome to the guests. Congratulatory addresses were presented by Prof. E. D. Adrian, Prof. W. D. Bronk, foreign secretary of the U.S. National Academy of Sciences, Prof. Linderström-Lang, director of the Carlsberg Institute, Copenhagen, Prof. A. I. Virtanen, director of the Valio Research Laboratory in Biochemistry, Helsinki, and Prof. Mohr, rector of the University of Oslo.

COLOUR TERMINOLOGY

THE Committee on Colour Terminology appointed in 1941 by the Colour Group of the Physical Society had originally two objectives: (a) to record definitions of terms current in the various groups of people concerned with colour; and (b) to examine the possibility of co-ordinating the terms commonly used. Later, in the light of the Committee's discussions, a third objective was added: (c) to recommend a consistent terminology. This was a significant step, as the subject of colour has very wide ramifications and there was every reason to expect very great difficulty in even approaching consistency. The report now published* shows that, provided a few key changes are made, the terms used by different technical groups can be embodied in a single scheme which avoids gross ambiguities while keeping the specialized terms of particular interests substantially intact. The nomenclature of colours themselves, as distinct from the terms used in describing and specifying them, was expressly excluded from the Committee's consideration.

In drawing up the basic list of current terms with their definitions or mode of use—a list which occupies about two-thirds of the 56 pages of the report—the Committee's net was thrown very wide. The fields covered were colour physics (general, photometric, subjective and colorimetric terms), colour vision, colour-atlas systems (Munsell and Ostwald), technologies involving colour (dyeing, paint and pigment,

* Physical Society. Report on Colour Terminology. By a Committee of the Colour Group. Pp. iv + 56. (London: Physical Society, 1948.) 7s. net.

printing, photographic, glass and decorating industries), the painting art and the colour terms of everyday speech. The definitions are fully descriptive, and sufficient explanation of the underlying principles is given to make clear how certain expressions have come into use. In colour physics, once the distinction has been established between subjective terms describing the sensations produced and the corresponding objective terms specifying the stimulus, the definitions themselves present no serious difficulty. The case is different with technological terms. For example, in the paint and pigment industry, the term 'chalky' has a meaning which in the Committee's definition runs "An excess of white (in a match supposed to be close)". But, as is pointed out, in practice, 'chalky' frequently implies that by the addition of wrong pigments or otherwise, a pigment mixture has been made whiter than the sample and that the difference is irremediable.

The colour terms used by contemporary artists are handled very gingerly by the Committee—the proper course for an exclusively technical body—and for these and for the terms of ordinary speech no recommended usage is put forward.

The interrelations of the terms of different groups are displayed in tabular form, and in the case of the dyeing and paint and pigment industries, the different meanings of comparative terms such as 'stronger', 'dirtier', 'brighter', etc., are indicated by vector lines in colour triangles of the Ostwald type with black, white and a particular colour at the vertices.

As a first step to co-ordination the Committee drew up a self-consistent list of essential terms that could be used by all colour workers without risk of confusion. The final recommendations are based on this self-consistent list and cover nearly a hundred terms.

The main changes required of different groups are as follows. In colour physics, the term 'brightness' is to be replaced by 'luminosity' when the subjective aspect is in question, and by 'luminance' when brightness as an objective or stimulus quantity is intended. The term 'shade', which at present has several different meanings in the dyeing, paint and pigment and printing industries, is to denote "darker colour of same hue and saturation". The same groups are asked to reserve 'tone' for "any small variation from another colour". 'Duller' (paint and pigment industry) is not to be used to mean "containing more black" but as "less colourful" or "less saturated", while 'deeper' is to mean "containing less white".

In a concluding section the recommended terms are compared with those proposed in the recent Colorimetry Report of the Optical Society of America. Among the comparatively few points of disagreement may be noted the American retention of the term 'brightness' for the subjective meaning of the word, while the corresponding term recommended by the British committee—'luminosity'—is used in the American report for the "ratio of the luminous flux to radiant energy flux". The latter quantity is called 'visual sensitivity' in the British scheme. It is probable that the terms 'luminosity' and 'visual sensitivity' will prove the most controversial in the Committee's recommended list.

Discussions on terminology often appear to non-participants as rather unproductive. But whether or not the changes recommended in this report are adopted, there can be no question that the careful exposition of present usage which it contains will be of the greatest value to workers on colour problems.

W. S. STILES

NEWS and VIEWS

Geology at the University of Liverpool:

Dr. R. M. Shackleton

DR. ROBERT MILLNER SHACKLETON, who has been appointed to the George Herdman chair of geology at Liverpool, vacant by the resignation of Prof. F. Coles Phillips, returns to the University from which he graduated in 1930 and at which he was awarded the degree of Ph.D. in 1933 for researches into the complex structure of Moel Hebog, Caernarvonshire. On leaving Liverpool, Dr. Shackleton went to the Imperial College of Science and Technology, London, with a Beit Fellowship, and joined the staff of the Geology Department of the College in 1934, becoming senior lecturer in charge of petrology in 1946.

Dr. Shackleton's field-experience has been extraordinarily extensive and varied. He has travelled widely in South and Central Africa and in Russia and Siberia. In 1935–36 he made a reconnaissance survey of Viti Levu in the Fijis, where he discovered that the plutonic rocks, previously thought to be an old basement, are of Tertiary age. During 1940–45, he served on the Geological Survey of Kenya, his chief work dealing with economic problems connected with the Migori gold-belt, the phosphate possibilities of North Kavirondo and the water supply of the Aberdare Range and Mount Kenya areas. In 1946 he returned to Kenya and made a one-man expedition to the Rift Valley, where the sequence of the artefact-bearing beds of the Pleistocene was determined and

the structure of a section of the Rift Valley elucidated. Last year he took part in the Royal Society Expedition to Rusinga Island in Lake Victoria, Kenya, from which important results concerning the succession and structure of the Miocene beds in which hominoid remains occur are expected. It is to be hoped that Dr. Shackleton will find time to prepare for publication a part at least of these important results of his field-studies.

Dr. Shackleton has been a member—and largely director—of a research team from the Geology Department, Imperial College, that has been working for a number of years on a project to compare the two sides of the North Atlantic and to test the continental drift theory and in particular to determine the magnitude of any drift that may have occurred. As soon as the grasp of the structure and stratigraphy on the eastern side of the Atlantic is sufficiently firm, it is intended to proceed to the examination of Eastern Newfoundland and the coast of Labrador. His new sphere at Liverpool will provide Dr. Shackleton with increased opportunities for the continuation and completion of this attractive study.

Physiology at the Queen's University, Belfast:

Dr. A. D. M. Greenfield

THE Queen's University of Belfast announces the appointment of Dr. A. D. M. Greenfield to the Dunville chair of physiology in succession to Prof. H. Barcroft, now at St. Thomas's Hospital Medical