In all these the reader has the advantage—inherent in the form in which these transactions are published—of not only learning what an experimenter has to say about his work, but, in addition, seeing the comments it elicited from other keenly interested participants. The question and answer, and the pooling together of small observations which, in isolation, might seem unimportant or meaningless, encourage a clarification and building up of ideas. The contrasting styles of the different contributors also make the reading of these publications much more enjoyable than the reading of some technical journals in which the papers have been so zealously 'edited' that all trace of individual style of expression has disappeared.

The remaining topics discussed at this fifteenth meeting were mostly concerned with hormone studies, and several of the papers consisted in the presentation of further data from work which had already been reported at earlier meetings. The interdependence of the multifarious metabolic activities which take place in the human body and the consequent folly of trying to interpret any one in isolation become more and more evident as each set of these transactions is put together.

M. W. GRANT

MECHANICAL FOAM FOR FIGHTING PETROL FIRES

FOAM for dealing with petrol fires can be generated in two ways: by chemical reaction (chemical foam), or by mechanical agitation (mechanical or air foam). Mechanical foam is largely used in Great Britain and is produced by churning up air and water with a foam-stabilizing agent, such as saponin or soap. The foam-making branch pipe is the apparatus in general use by fire services.

The use of foam appears to have been originally suggested by Laurent in 1904. He successfully demonstrated at St. Petersburg the use of chemical foam against burning naphtha. In 1912, the first foam fighting apparatus for fire-brigade use was introduced into Britain. By 1939, one or two efficient foam compounds were available; but they were both expensive and made from imported materials. With the outbreak of hostilities there came the probability of a large increase in the incidence of petrol fires and also the danger of a shortage of raw materials. Consequently, at the request of the Ministry of Home Security, Research and Experiments Department, an investigation into the whole problem of suitable foaming agents for combating fires of inflammable liquids was undertaken at the Chemical Research Laboratory of the Department of Scientific and Industrial Research. The experimental team was under the leadership of Dr. N. O. Clark, who is the author of Chemical Research Report No. 6: "A Study of Mechanically Produced Foam for Combating Petrol Fires" (London: H.M. Stationery Office. 2*s*. 6*d*. net), in which full details of the problem, the course of the researches and the results obtained are given.

Large-scale methods were developed which permitted a quantitative estimation of the value of foam as a fire-fighting agent, and also a laboratory technique was devised for the investigation of the physical properties of foam. The nature and properties of suitable foaming agents, such as chemically broken down hoof and horn meal, or glue mixed with materials similar to soapless shampoos or chemically treated blood, were elucidated. The use of chemically treated blood—a waste material from abattoirs—as a foaming agent was discovered by the research team. This new compound had the additional advantage of a much lower viscosity than other types and so could be used without modification in R.A.F. crash tenders. It produces a high-efficiency foam for combating aircraft fires, and during the War production was devoted entirely to this particular type of foam.

On the purely scientific side, quantitative evidence was obtained in favour of Plateau's classical theory of foam stability. It would appear that the expansion property depends on the interfacial tension, air/liquid, at the appropriate age of the surface, and the rate of diffusion of the active material into the surface, and is limited by the energy-level of the method of preparation. The hydrolysed proteins are, for example, slow in diffusing into the surface of their solutions. A close relation was shown to exist between the critical shearing stress of a foam prepared from a liquid with appreciable solidity in its surface to that of the corresponding liquid surface.

For the first time, a proper scientific background to the problem has been established, and the 'figure of merit' of foam on a petrol fire can be roughly estimated, but not accurately predicted, from laboratory measurements of the properties of foam, the most important being heat resistance, expansion, and petrol resistance. There is still need for relating laboratory experimental data with those of large-scale tests.

S. WEINTROUB

LINEN INDUSTRY RESEARCH ASSOCIATION

THE report of the Council of the Linen Industry Research Association, Belfast, for the year ended September 30, 1947, states that the strengthening of the financial position of the Association, which now includes practically all the firms in the industry, has permitted the Council to proceed with the Director's plans for expansion, and the new buildings have been commenced. In addition to the large shed with a floor space of 9,800 sq. ft. for technological researches on line and tow preparing, dry spinning and weaving, which forms the main extension, the new plans include the provision of more staff amenities and facilities, extension of the testing-room and further space and equipment for research in bleaching, dyeing and finishing. Reference is made to the co-operation in research which has already flowed from the liaison service described in the last annual report. Comprehensive surveys of conditions of temperature, humidity and ventilation in wet spinning mills have brought to light many striking anomalies, and have led to suggestions by which decided improvements can often be introduced very economically into the working conditions by comparatively simple measures.

Studies in the retting of different types of straw by various methods in the large-scale retting tanks have continued, and in view of the larger differences in yield caused by variations in weather conditions during field-drying of the retted flax, attention has