farms, and must be reduced to something like 97 grs. for the ration "as purchased." This, however, is about the amount consumed by the more poorly fed among the population—by the agricultural labourer, for instance. One would have expected the average for the whole country to be appreciably higher. On the other hand, the value 4129 calories (3875 "as purchased") seems high for the energy ration, and the proportion it bears to the figure for protein is exceptionally high. We cannot but think that Prof. Thompson has failed to make sufficient allowance for the starch, and especially for the fat, which, while appearing in the market returns, is diverted to industrial uses and never reaches the mouth of the consumer. If the figure for protein accurately represents the available supply and measures our consumption before the war it would seem that there is not much room for economy in the amount eaten.

Prof. Thompson, in considering the possibilities of economy, emphasises, however, a point upon which most writers have insisted: "The British nation as a whole relies too much on flesh meat for the protein element of its food. This is the most costly of all the common articles of diet to produce." He has himself shown, "from calculations based on average results, that an acre of land, if used for grazing sheep or cattle, produces per annum not more than 260 oz. of protein, and 290 kilolitre calories of energy. Whereas, if used for tillage, the same area of land produces in wheat 19 times as much protein, and 15 times as much food energy; in beans 20 times as much protein, and 9 times as much food energy; in peas 10 times as much protein, and 4 times as much food energy; in potatoes 17 times as much protein, and 30 times as much food energy."

"Economy practised in the direction indicated would entail no loss of efficiency, and would work out to the economic advantage of the country as a whole. It would also have another indirect result. The food of Great Britain is brought from the ends of the earth, the charges for transit adding considerably to its cost. A man of twelve stone weight requires, as already stated, nine times his own weight of food every year, or three-quarters of his own weight every month. This entails in freight charges an outlay which adds considerably to the food item in a working-class budget. Every additional ton weight of home-produced food should reduce this sum, if freight charges be justly apportioned."

THE FUTURE OF CHEMICAL INDUSTRY.

AT a recent meeting of the New York Section of the Society of Chemical Industry, Dr. Baekeland was awarded the Perkin medal for his discoveries in technical chemistry. Dr. Baekeland, in acknowledging the honour, gave an interesting account of the introduction of the well-known Velox paper into photography, and the successive steps in the production of bakelite—an artificial resin of great hardness and durability, which has found a variety of important applications.

The portion of the address which should command most attention at the present time is not so much the account of the inventive skill, tenacity of purpose, and never-failing resourcefulness, associated with a highly-trained scientific mind, which have brought Dr. Baekeland's investigations to a successful issue, for these are qualities which have been shared by most of the great inventors; but his views on the present and future condition of the chemical industries of the United States. For these conditions are not unlike our own, and we may well learn a lesson from one who by education and experience in the laboratory and in the works is so well equipped to speak with authority.

Dr. Baekeland points out that the country has enough capable chemists, but that there are conditions under which the best chemists cannot succeed, for success depends just as much on the kind of men who are at the business end of the new chemical enterprises. "It will certainly do no harm," he says, "to many of our new chemical enterprises if among their directors they have at least some chemists as well as purely business men or bankers and lawyers." "Why should a chemist," he asks, "if he is intelligent enough to master the most intricate problems of chemistry, not be able also to learn how to exercise enough common sense and good judgment to help to discuss and devise successful business policies?" He points out that all the largest chemical enterprises of the world have always had prominent chemists among their directors, and the policy of these enterprises has not been left entirely in the nands of a set of purely business men who remained wilfully ignorant of the essential technical parts upon which their enterprise was based. He refers also to the industrial part played by the German banks, who, with a staff of scientific advisers, have mastered the art of nursing new chemical industries.

A successful industry, he says, must be built upon sound scientific knowledge, which consists in the putting into practice principles of efficiency and introducing knowledge where ignorance formerly existed, with its usual accompaniments of waste and slovenliness. It does not mean merely dividends for its stockholders or wages for its workmen. Dr. Baekeland looks with considerable apprehension on the future of some of the ventures which are being started now by men who are merely trying to make money quickly, who look upon their chemists merely as temporary tools, and see in their enterprise only a pretext for realising their greedy ambitions.

Finally, Dr. Baekeland touches upon the educational question. He exonerates the chemist for the part that chemistry has been forced to play in the war by showing how war is ages older than science and has been born of greed, iniquity, and lust for power. It is the main inheritance of the aims and thoughts of the past, rendered respectable by a rather large share of our so-called classical literature, together with our awe for tradition, which keeps us in the cold, relentless grip of the wrong ethics of bygone ages.

J. B. C.

RECENT WORK ON GENETICS.

DR. L. DONCASTER'S work on sex-limited colour-inheritance in cats is well known to students of heredity, the typical "tortoiseshell" coat being almost always characteristic of a female. An account of the microscopic structure of a testis from a tortoiseshell male which after repeated matings failed to beget kittens is given by Dr. Doncaster and Mr. D. W. Cutler in the December number of the *Journal of Genetics* (vol. v., No. 2). The tubules were absolutely devoid of spermatocytes and spermatozoa, while the interstitial tissue which is supposed to be concerned with the secretion of the sexual hormones was exceptionally well developed. The belief that the rare tortoiseshell tom-cat is normally sterile is thus confirmed, though the records of breeders show that a fertile male of this colour has been known. The conclusion drawn, therefore, is the possibility that "the abnormal transmission of a sex-limited colour-factor to a male may sometimes cause the animal to be sterile, and in other cases not have this effect."

This number of the journal contains also an impor-