

The absolutely fresh flesh is used to form whale meat meal, a nutritious and wholesome food-stuff, containing $17\frac{1}{2}$ per cent. proteid, largely used for feeding cattle. From the remaining flesh and about a third of the bones whale guano is made; and from bones alone, bone meal.

The modern whaling operations were started by Captain C. A. Larsen in 1904; and his satisfactory results led to the formation of a large number of companies, which now carry on, in the dependencies of the Falkland Islands, the largest whaling business in the world. The season from November 1, 1912, until the end of April, 1913, yielded, at South Georgia, about 5000 whales (52 per cent. humpbacks, about 42 per cent. finners, and about 6 per cent. blue whales). These produced about 200,000 barrels of oil and about 8000 tons of guano. At the South Shetlands and Graham Land the much shorter season yielded also about 5000 whales; at the South Orkneys the still shorter season yielded about 800 whales; at the Falkland Islands only 87 whales were brought in. The total production was about 430,000 barrels of oil—more than half the world's output for that season—and 8375 tons of guano, the gross value being about 1,350,000*l.* sterling. The industry gives employment to about 3500 men. The report is a business-like document, very lucidly presented by one who evidently knows what he is talking about. No indication is given of the probabilities of continuance. We hope that the shortness of the season will suffice to give the finners a chance for many a year to come.

CHEMISTRY AND INDUSTRY.

WE live in an age of specialisation; in no era has the statement that "monomania is the secret of success" approached more closely to the truth. Business is an instinct, chemistry a science, and although it is conceivable that it is of advantage for the chemist to possess some business instinct, and for the business man to have some knowledge of chemistry, the combination in one person of acute business instinct and scientific genius is so rare as to be negligible. Both these great qualities are needed for the solution of our industrial problems—the nation lacks neither the one nor the other, but they reside in different individuals who possess entirely different types of mind. Co-ordination is the sole solution.

It has been stated that the German chemical industries have been built up by men who possess both business acumen and scientific ability. This is not the case. Men of science, such as Caro, Berntsen, Gläser, and Graebe, and business men such as Brünck, have collaborated, and the collaboration has been successful.

Again, it is remarkable that this country should have adopted the view that there is some essential difference between the scientific chemist and the technologist; the former is dubbed "theorist," and is ignored; the latter is the "practical man,"

and is belauded. One of the chief reasons for German success lies in the fact that they have realised that the terms man of science and technologist are complementary, that the one must discover while the other adapts.

No chemical process, unless it is based on mere rule of thumb, can be discovered without the aid of the knowledge and experience which can only be gained by many years of scientific training. Such discoveries have to be made and worked out, in the first instance, on the laboratory scale, and this is the province of the scientific chemist. The discovery having been made, and the conditions for production, dictated by considerations of economy, having been determined, it is then the business of the technologist to adapt the process to commercial conditions. It is the lack of a true appreciation of these matters which has hampered the development of scientific industry in this country, especially in those directions in which highly trained specialised knowledge is required.

At the present time many potentially useful discoveries are made in the chemical laboratories of our universities, university colleges, and technical schools, and there are isolated instances in which enlightened manufacturers have made use of them, but in the majority of cases the scientific worker has found by sad experience that little financial profit accrues to him even though he goes to the trouble of obtaining patent protection. He is so rarely a man of business that, if he co-operates with a manufacturing firm, his elimination, from a financial point of view, is usually an easy matter. In consequence, the greater number of scientific chemists, to whom the joy of discovery is everything, and the adaptation of minor importance, prefer to publish their discoveries in the scientific periodicals, where they serve as useful suggestions to others both at home and abroad.

This unfortunate and wasteful condition of affairs can be altered if some body in authority would undertake to organise the scientific ability which is available in our educational institutions. The function of this organising body would be to receive from and to make suggestions to manufacturing firms, and to allot the problems to the scientific laboratories. The scheme would in no way affect the works laboratory, which would still fulfil its proper function of adapting the scientific details to commercial conditions. Moreover, the works laboratory could be recruited from the scientific laboratory, as is the case in Germany, by the enrolment of those men who show themselves fitted by temperament for such work.

It must not be imagined that this article is in any way a plea for the curtailment of research in pure science, which means research of a purely abstract kind, having for its object the discovery of the natural laws underlying the science, and which is, of course, absolutely indispensable. It is merely stupid to decry this form of research or to speak of its apparent lack of utility; if the laws of organic chemistry had not been determined by abstract research there would have been no coal-tar industry.

It is, then, by such a scheme as is here outlined that the scientific army of the nation can be marshalled to meet the present national emergency, but there is yet another aspect which will require immediate attention if we are to carry on the work without unnecessary hindrance.

One of the chief differences between the German and English patent laws is that while in this country a patent specification is held to be addressed to a person skilled in the art, say, to a skilled workman, in Germany it is sufficient if it is understood by an expert. This factor, apart from any intention to deceive on the part of the patentee, is responsible for the frequent "insufficiency of patent specification" which characterises both German patent specifications, as well as British specifications based upon German inventions. It is, indeed, very rare to have a German patent granted on the full text of the specification which was originally submitted to the German Patent Office. The outcome of this is that when the invention has been found novel and patentable by the examiner, the specification is promptly cut down and stripped of all such matter as he considers to be more or less obvious to an expert.

Again, the high cost of legal procedure in this country, and the fact that the Comptroller has no power to refuse the grant of a British patent for alleged insufficiency or want of subject matter, are responsible for the obtaining, particularly on the part of large German chemical companies, of a great number of "block" patents, the whole object of which is to block the development of chemical industry in this country.

It is certain that a good many chemists and chemical manufacturers are fully aware of the fact that a large number of British patents granted to Germans are merely "bluff," and could readily be invalidated were it not for the exceeding high cost connected in this country with such legal procedure; it is for this reason, also, that many small inventors stand absolutely no chance against large companies, which, in view of the high cost, are alone able to go before the Court.

Under Section 27 of the Patent Act an effort has been made to enforce the manufacture of patented inventions in this country by what is generally known as the "compulsory working" clause. It seems to be now admitted that this arrangement has not worked in practice, and its failure is due mainly to the lack of organisation, in this country, of the scientific ability which is vital to all modern industries.

In conclusion, I should add that I am indebted to Mr. J. E. Pollak, of the firm of Messrs. Dicker, Pollak, and Derrimann for the above information respecting the working of the patent laws.

JOCELYN THORPE.

NOTES.

WE regret to see the announcement of the death on January 24, at seventy-six years of age, of the astronomer, Prof. G. F. J. Arthur Auwers, of Berlin, foreign member of the Royal Society and associate of the Royal Astronomical Society.

NO. 2364, VOL. 94]

DR. T. WESLEY MILLS, emeritus professor of physiology, McGill University, Montreal, died suddenly in London on February 14.

THE council of the British Medical Association has decided that the annual meeting, which was to have been held at Cambridge this summer, shall not take place. The statutory annual general meeting of the association, and the annual meeting of representatives will, however, be held.

GOOD progress is being made, says the *Pioneer Mail*, with the scheme for the establishment of a School of Tropical Medicine in Calcutta, with which the name of Sir Leonard Rogers is associated. An excellent site has been secured close to the Calcutta Medical College, and the buildings are in course of erection. The first subscription list shows that a lakh and three-quarter rupees has been obtained already, and another half-lakh is practically secure.

M. LOUIS MOISSAN, son of the late Prof. Henri Moissan; and assistant at the *Ecole supérieure de Pharmacie* at Paris, who died on the field of battle on August 10, has left to his school, in addition to the scientific estate of his father, the capital sum of 200,000 francs for the foundation of two prizes—one for chemistry (*prix Moissan*), and one for pharmacy (*prix Lugan*), in memory respectively of his father and his mother, *née Lugan*.

THE Royal Astronomical Society has taken the first step towards placing itself in line with a number of other scientific societies by deciding at the anniversary meeting on Friday last, February 12, "That this meeting approves of the admission of women as Fellows and Associates of the Society, and requests that all steps necessary may be taken to make their election possible." The meeting was almost unanimously in favour of the proposal—fifty-nine fellows voting for it to three against—and a supplementary charter will now be applied for in order to put the resolution into force.

AT its annual meeting, held in Saint Louis on December 28 last, the Federation of American Societies for Experimental Biology—which includes the Physiological Society, the Society of Biological Chemists, the Society for Pharmacology and Experimental Therapeutics, and the Society for Experimental Pathology—passed the following resolution addressed to the men of science belonging to the nations of Europe now at war:—"That we extend to the scientific men within these nations the hope of an early and enduring peace, which will leave the nations with no permanent cause of rancour towards each other, and which will ensure to each the glories of scientific and humanitarian achievement in accordance with its own conception of these ideals."

THE council of the Royal College of Surgeons has given permission to the Royal Anthropological Institute and Prehistoric Society of East Anglia to hold a combined meeting in the museum and theatre of the college, Lincoln's Inn Fields, W.C., on the afternoon of February 23. Many recently discovered specimens will be shown and discussed, proceedings commencing at 2.30. An evening meeting will be held on the same