

In 1913 experiments were in hand on the cultivation of better varieties of beet and on the utilisation of the neglected by-products.

An increased exportation during 1915 and the subsequent diminished production (75,000 tons for 1917-18) brought about a sugar famine and in 1918 the price rose to 3.55 lire a kilo (1s. 3d. per lb.).

**Glucose.**—The annual production is about 6,500 tons, chiefly by a Milan company. The imports and exports are insignificant.

**Wines, Etc.**—The average yearly production of wine is 40 million hectolitres and the exports are about 1.3 million hectolitres. In the year 1913 there were exported, 4263 metric tons of wine yeast, 8294 of crude tartar, 2846 of tartaric acid, 348 of cream of tartar, and 356 of vinegar.

The vinegar industry is little developed and the larger factories (in Bologna) are of Austrian origin.

**Brewing.**—In 1913, 652,000 hectolitres of beer was produced, partly by Italian and partly by German undertakings. Imports were 86,000 hectolitres (including bottled beer), 90 per cent. of which came from Germany and Austria.

**Alcohol and Spirits.**—The production in 1913 was 372,584 hectolitres, of which 177,500 was from sugar and 130,000 from grain. The exports (chiefly to North and South America) are valued at 7.5 million lire and the imports at 1.23 million lire, including more than 1 million lire for cognac.

The following particulars relate to purely chemical and gas companies, and exclude those dealing with metals, textiles, paper, glass, etc. At the end of 1915 there were 102 companies possessing a combined capital of 286.7 million lire; debentures totalled 62.3 and reserves 75.1 million lire. Eighty-nine of the companies earned a total profit of 47.7 and 13 companies a loss of 3.5 million. (*Z. angew. Chem.* June 24, 1919.)

**Phosphate Deposits in Morocco (French Zone).**—The phosphate mines at El Boroudj will probably be put to public tender early next year. It is expected that the concession will call for 100,000,000 francs capital. The Protectorate will welcome British or any capital likely to work the deposits on a large scale. A French company is preparing to tender. Analyses of the deposits and geographical and transport particulars may be obtained by British interests from the Near East Section, Department of Overseas Trade, 4, Queen Anne's Gate Buildings, Westminster, S.W.1.—(*Ibid.* of *Trade J.*, September 4, 1919.)

**Exports of Chemicals from Norway.**—The following figures taken from the Norwegian Official Statistical Bulletin of December, 1918, show the exports of chemicals (in kilo. of 2.2046 pounds) from Norway during 1918, in comparison with those for 1917:—

Chemicals.	1917. Kilo.	1918. Kilo.
Nitric acid .. ..	1,021,170	836,086
Oxalic acid .. ..	334,089	206,028
Sulphate of ammonia ..	50,000	—
Nitrate of ammonia ..	63,578,129	49,587,663
Sodium nitrate .. ..	22,711,200	2,636,553
Sodium nitrite .. ..	3,536,000	2,097,811
Norwegian saltpetre ..	35,032,400	53,625,250
Cyanamide .. ..	2,312,910	10,490
Calcium carbide .. ..	46,000,030	41,771,876
Iodine .. ..	1,180	5,373

Exports of matches were given as 5,014,918 kilo. in 1918, as compared with 4,044,680 kilo. in 1917; ferrosilicon, 29,449,710 kilo., against 16,861,278; and gunpowder and other explosives, 1,130 kilo., against 11,667.—(*U.S. Com. Rep.*, Aug. 22, 1919.)

**Aluminium Food Containers.**—The use of leaden containers for foodstuffs, drugs, and cosmetic preparations has been repeatedly condemned as dangerous or unhealthy by the Imperial Board of Health. The injurious consequences accompanying their use can be avoided by employing aluminium, which pos-

sesses all the essential properties, viz., homogeneity, pliability, and compressibility without fracture. A brochure relating to such containers made of pure aluminium and detailing their dimensions and cubical content is being circulated by the Fritz Neumeyer A-G., Nürnberg 130, and is of particular interest by reason of the original patterns described therein.—(*Z. angew. Chem.*, July 18, 1919.)

**Dyestuffs Standards for China.**—Practical dye-men and Hong-Kong importers of dyes report that the chief factor in the future of the sale of dyes in China is the standardisation of colour shades. One of the chief elements of the success of German dyes in this field was that certain shades popular among the Chinese could be relied upon. The matter of colour is very important among the Chinese. Many of the colours have special significance of a ceremonial sort as well as being regarded as more or less lucky or unlucky. There are large interests in China, especially in Amoy, Swatow, Chuchow, and various South China coast cities, where imported shirtings and sheetings are dyed for sale to the Chinese. The basis of this entire business is the quality of colour in the cloths thus handled, which depends on the uniformity of colour and the quality of the dyes.—(*Ibid.* of *Trade J.*, Sept. 11, 1919.)

## REVIEWS.

**EXPLOSIVES.** By E. DE BARRY BARNETT. INDUSTRIAL CHEMISTRY, edited by DR. S. RIDEAL. Pp. xvi + 241. (London: Baillière, Tindall and Cox, 1919.) Price 12s. 6d. net.

Those who are engaged in the manufacture of explosives will find nothing new or striking in this book, either in fact, observation, or theory; but it will be of considerable value to everyone interested in technical chemistry who wishes to obtain general information as to the present position of the various branches of the explosives industry. The book has been clearly and concisely written, but there is a marked inefficiency in punctuation, and several of the sentences might have been rewritten with advantage. The author has compressed a large amount of reliable data into 233 pages, and the information has been brought up to date by including the official figures for the cost of producing various explosives during 1918.

In the introductory historical section a useful summary is given of some points in the Explosives Act, the method of construction of danger buildings, and the means taken to ensure, as far as possible, the safety of workpeople. Gunpowder is dealt with in a short section. This country has always had a justifiably high reputation for the quality of its gunpowder, and it is not generally recognised that this has been due, in no small degree, to the hereditary art of the gunpowder maker.

Nitroglycerin, gun-cotton and nitro-aromatic compounds are treated on familiar lines. The author makes no reference to the modifications made during the war in cotton cellulose and the methods of chemical purification. In dealing with nitro-cellulose waste acid, it is stated that "The residual sulphuric acid still contains 2-3 per cent. of nitrous acid which cannot be removed by distillation, and it is denitrated by steam." Such conditions are certainly quite exceptional, as the general experience is that the residual sulphuric acid contains only the merest trace of nitric and nitrous acid, and has not to be denitrated with steam before concentration. During the war the Gaillard tower has been much more extensively used than is indicated by the author. The available literature on military smokeless propellants is very extensive, and a good résumé has been made of this work.

On page 71 the author confers a knighthood on Alfred Nobel and then credits him with investigations on cordite which were carried out by Sir Andrew Noble. In dealing with smokeless sporting powders the author is naturally handicapped by the fact that there is no published information on the methods of manufacture of some of the most prominent of the English sporting powders. Long experience and investigation have led to the use of special types of nitro-cellulose, special solvents and special methods of manufacture. For many years the methods of manufacturing gelatinous and granular blasting explosives have altered very little. The problems in this branch are connected with decrease of velocity of detonation and the development of inertness after prolonged storage, and the investigator has to deal with many intricate problems in the chemistry of colloids.

The author is hardly correct in his statement that the Werner Pfleiderer machine is usually preferred for incorporating gelatinous blasting explosives, seeing that the McRoberts machine is almost universally employed in this country.

A good selection has been made from the published literature on explosives for use in coal mines, and the experimental galleries at which they are tested.

The author has correlated many of the explosives on the British permitted list, and expressed his opinion as to the influence on the maximum charge of difference in composition, nature of wrapper and method of manufacture.

The reviewer has been closely associated with the experimental work connected with several of the explosives on the permitted list. The longer his experience, the less is his inclination to form definite opinions as to the relative influence of the many factors which are known to affect the test.

Other sections deal with percussion caps, detonators and fuses, matches and pyrotechny, and the testing of explosives.

In the concluding section the author endeavours to forecast the future developments in the explosive industry.

G. W. MACDONALD.

**THE ANALYSIS OF MINERALS AND ORES OF THE RARER ELEMENTS.** By W. R. SCHÖELLER and A. R. POWELL. Pp. x + 239. (London: C. Griffin and Co., 1919.) Price 16s. net.

The exigencies of the war have led to a much wider recognition in this country of the many industrial uses for the rarer elements and their compounds. Although several books have appeared on the occurrence and utilisation of these substances, in all these works the analytical examination of their ores has either been ignored or dealt with in a very brief manner. Text-books on analytical chemistry also failed to meet the requirements of the mineral chemist called upon to analyse such material for the first time. The present volume is therefore particularly welcome, as it fills the gap in a very concise and yet adequate manner.

The introductory chapter deals first with various manipulative details, and then considers briefly the mineralogical examination of the material, and in this connection the authors rightly emphasize the need for a good knowledge of mineralogy to chemists who are called upon to deal with economic problems in regard to the treatment of ores of the rarer elements. After giving numerous tables for the qualitative examination of the minerals the quantitative analysis is discussed. The elements thus considered are lithium, rubidium, caesium, beryllium, radium, scandium, gallium, indium, thallium, cerium and its allies, titanium, zirconium, thorium, germanium, vanadium, columbium, tantalum, selenium, tellurium, molybdenum, tungsten, uranium, ruthenium, rhodium, palladium, osmium, iridium and platinum.

The principal theme of the volume is complete quantitative analysis, the general schemes for which are given largely in tabular form, whilst the behaviour of individual elements is considered in detail. The authors frankly invite discussion and criticism of the methods of separation and estimation recommended, but only very occasionally is one inclined to join issue. In the case, however, of the mineral thorianite (p. 111), its decomposition by fusion with bisulphate as recommended appears to be undesirable in view of the fact that the mineral decomposes very readily with boiling nitric acid, thus avoiding the introduction of alkaline sulphates into the rare earth solution, and, at the same time, effecting a separation from such minerals as zircon, quartz, rutile and much of the ilmenite. Greater stress might also be laid upon the disturbing influence of titanium compounds upon the solubilities of those of tantalum and columbium—e.g., in the separation of tantalum as potassium fluo-tantalate, and as affecting the insolubility of the oxides in water after fusion with bisulphate of potash.

Numerous footnote references are given to original papers, and in place of the customary subject index we have two—(a) an index to minerals, (b) index to separations.

To the investigator who has not an extensive reference library at his disposal, the value of future editions of this book might be enhanced by the inclusion of a few tables showing typical complete analyses of the more common rare earth minerals; as it stands, however, the work should prove of value to all chemists who may be called upon to examine minerals and ores of the rarer elements as it appears to be a distinct advance on anything previously published on the subject, either in this country or abroad.

SYDNEY J. JOHNSTONE.

## PUBLICATIONS RECEIVED.

**A TREATISE ON BRITISH MINERAL OIL.** (With a foreword by SIR BOVERTON REDWOOD). Edited by J. A. GREENE. Contributors: E. H. CUNNINGHAM-CRAIG, W. R. ORMANDY, F. MOLLWO PERKIN, A. CAMPBELL, A. E. DUNSTAN, and A. H. SEABROOK. Pp. 233. (London: C. Griffin and Co. 1919.) Price 21s.

**PRINCIPLES OF ELECTRIC SPARK IGNITION IN INTERNAL COMBUSTION ENGINES.** By J. D. MORGAN. Pp. 88. (London: Crosby, Lockwood and Son. 1920.) Price 8s. 6d.

**JOURNAL OF THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND.** Vol. 79. Pp. 284 + xxxix. (London: John Murray. 1918.) Price 10s.

**THE CONDITIONS THAT GOVERN STALENESS IN BREAD. CHANGES OF MOISTURE AND SOLUBLE EXTRACT WITH AGE. INVESTIGATIONS AND RESEARCHES MADE IN THE BRITISH ARMY BAKERIES IN FRANCE, 1917-1918.** By CAPT. R. WHYMPER. Reprinted from "The British Baker." Pp. 72. (London: MacLaren and Sons, Ltd. 1919.)

**NOTES OF TEN INTRODUCTORY LECTURES ON ORGANIC CHEMISTRY WITH SPECIAL REFERENCE TO COAL.** Bulletin 1. Pp. 32. (Lancashire and Cheshire Coal Research Association. 1918.) Price 1s.

**CHEMICALS AND ALLIED PRODUCTS USED IN THE UNITED STATES.** Prepared by THE BUREAU OF FOREIGN AND DOMESTIC COMMERCE, in collaboration with THE AMERICAN CHEMICAL SOCIETY. Compiled by E. R. PICKRELL. Miscellaneous Series—No. 82. Pp. 194. (Washington: Government Printing Office. 1919.) Price 25 cents.