and Opone (these being entrepôts of Indian trade),@@1 under the name of saccharum or *σάκχαρι* (from Skr. *sarkara,* gravel, sugar), and used in medicine. The art of boiling sugar was known in Gangetic India, from which it was carried to China in the first half of the 7th century; but sugar refining cannot have then, been known, for the Chinese learned the use of ashes for this purpose only in the Mongol period, from Egyptian visitors.@@2 The cultivation of the cane in the West spread from Khūzistān in Persia. At Gundē-Shāpūr in this region “ sugar was prepared with art ” about the time of the Arab conquest,@@’ and manufacture on a large scale was carried on at Shuster, Sūs and Askar-Mokram throughout the middle ages.@@4 It has been plausibly conjectured that the art of sugar refining, which the farther East learned from the Arabs, was developed by the famous physicians of this region, in whose pharmacopoeia sugar had an important place. Under the Arabs the growth and manufacture of the cane spread far and wide, from India to Süs in Morocco (Edrīsī, ed. Dozy, p. 62), and were also introduced into Sicily and Andalusia.

In the age of discovery the Portuguese and Spaniards became the great disseminators of the cultivation of sugar; the cane was planted in Madeira in 1420; it was carried to San Domingo in 1494; and it spread over the occupied portions of the West Indies and South America early in the 16th century. Within the first twenty years of the 16th century the sugar trade of San Domingo expanded with great rapidity, and it was from the dues levied on the imports brought thence to Spain that Charles V. obtained funds for his palace-building at Madrid and Toledo. In the middle ages Venice was the great European centre of the sugar trade, and towards the end of the 15th century a Venetian citizen received a reward of 100,000 crowns for the invention of the art of making loaf sugar. One of the earliest references to sugar in Great Britain is that of 100,000 lb of sugar being shipped to London in r3r9 by Tomasso Loredano, merchant of Venice, to he exchanged for wool. In the same year there appears in the accounts of the chamberlain of Scotland a payment at the rate of 1s. 91/2d. per lb for sugar. Throughout Europe it continued to be a costly luxury and article of medicine only, till the increasing use of tea and coffee in the 18th century brought it into the list of principal food staples. The increase in the consumption is exemplified by the fact that, while in 1700 the amount used in Great Britain was 10,000 tons, in 1800 it had risen to 150,000 tons, and in 1885 the total quantity used was almost 1,100,000 tons.

In 1747 Andreas Sigismund Marggraf, director of the physical classes in the Academy of Sciences, Berlin, discovered the existence of common sugar in beetroot and in numerous other fleshy roots which grow in temperate regions. But no practical use was made of the discovery during his lifetime. The first to establish a beet-sugar factory was his pupil and successor, Franz Carl Achard, at Cunern (near Breslau) in Silesia in 1801. The processes used were at first very imperfect, but the extra­ordinary increase in the price of sugar on the Continent caused by the Napoleonic policy gave an impetus to the industry,

and beetroot factories were established at many centres both in Germany and in France. In Germany the enterprise came to an end almost entirely with the downfall of Napoleon I.; but in France, where at first more scientific and economical methods of working were introduced, the manufacturers were able to keep the industry alive. It was not, however, till after 1830 that it secured a firm footing; but from 1840 onwards it advanced with giant strides.

Under the bounty system, by which the protectionist countries of Europe stimulated the beet sugar industry by bounties on exports, the production of sugar in bounty-paying countries was encouraged and pushed far beyond the limits it could have reached without state aid. At the same time the con­sumption of sugar was greatly restricted owing to the heavy excise duties imposed mainly to provide for the payment of the bounties. The very large quantity of output made available for export under these exceptional conditions brought about the flooding of the British and other markets with sugars at depressed prices, not unfrequently below the prime cost of production, to the harassment of important industries carried on by British refiners and sugar-growing colonies. In these circumstances, the British government sent out invita­tions on the 2nd of July 1887 for an international conference to meet in London. The conference met, and on the 30th of August 1888 a convention was signed by all the powers represented except France—namely, by Austria, Belgium, Germany, Great Britain, Italy, the Netherlands, Russia and Spain. France withdrew because the United States was not a party to it. The first article declared that “ The high contracting parties engage to take such measures as shall constitute an absolute and com­plete guarantee that no open or disguised bounty shall be granted on the manufacture or exportation of sugar.” The seventh article provided that bountied sugars *(sucres primés)* must be excluded from import into the territories of the signatory powers, by absolute prohibition of entry or by levying thereon a special duty in excess of the amount of the bounties, from which duty sugars coming from the contracting countries, and not bounty- fed, must be free. The convention was to be ratified on the 1st of August 1890, and was to be put in force on the 1st of September 1891.

The convention of 1888 was never ratified, and it is doubtful whether its ratification was urged, for a bill introduced by the British government in 1889 to give it effect was not pressed, and it was manifest that there was hesitation—which presently became refusal—to uphold the policy of the penalties on the importation of bountied sugar imposed by the seventh article, without which the convention would be so much waste paper.

Eight years later, on the 1st of August 1896, the bounties offered by the governments of Germany and Austria-Hungary were approximately doubled, and France had a bill in prepara­tion to increase hers correspondingly, although it was computed that they were even then equivalent to a grant of £3, 5s. per ton. So wrote Mr Chamberlain, the colonial secretary, on the 9th of November following, to the treasury. The minute plainly stated that it had become a question whether the continued enjoyment of advantages resulting from the importation of cheap bounty-fed sugar to some British industries did not involve the ruin of the British sugar-producing colonies; and that he was not prepared, as secretary of state for the colonics, to accept the responsibility of allowing matters to take their course and to acquiesce in the policy of non-intervention hitherto pursued in regard to the bounties without having satisfied himself as to what such a policy might entail as regarded both the colonies and the exchequer. Mr Chamberlain concluded by asking whether the treasury would consent to sending a royal commission to the West Indies to inquire into the effect of the foreign sugar bounties on their principal industry.

The treasury accepted the proposal, and a royal commission proceeded to the West Indies in December 1896, and reported a few months later in 1897. Only one commissioner, however, denounced the bounties as the real cause of the utter breakdown of trade and of the grievous distress which all three had witnessed

@@@1 Lucan iii. 237; Seneca, *Epist.* 84; Pliny, *II.N.* xii. 8 (who supposes that sugar was produced in Arabia as well as in India) ; *Peripl. mar. Eryth.* § 14; Dioscorides ii. 104. The view, often repeated, that the saccharum of the ancients is the hydrate of silica, sometimes found in bamboos and known in Arabian medicine as *tabāshīr,* is refuted by Yule, *Anglo-Indian Glossary,* p. 654; see also *Not. et extr. des MSS. de la bibl. nat.* xxv. 267 seq.

@@@, Marco Polo, ed. Yule, ii. 208, 212. In the middle ages the best sugar came from Egypt (Kazwīnī i. 262), and in India coarse sugar is still called Chinese and fine sugar Cairene or Egyptian.

@@@’ So the Armenian *Geography* ascribed to Moses of Chorene *(q.v.* for the date of the work); St Martin, *Mém. sur l’Arménie,* ii. 372.

@@@4 Istakhrī p. 91 ; Yakut ii. 497. Tha'ālibī, a writer of the nth century, says that Askar-Mokram had no equal for the quality and quantity of its sugar, “ notwithstanding the great production of 'Irāk, Jorjān and India.” It used to pay 50,000 lb of sugar to the sultan in annual tribute *(Lat*ā*if,* p. 107). The names of sugar in modern European languages are derived through the Arabic from the Persian *shakar.*