The New San Miguel Glass Plant

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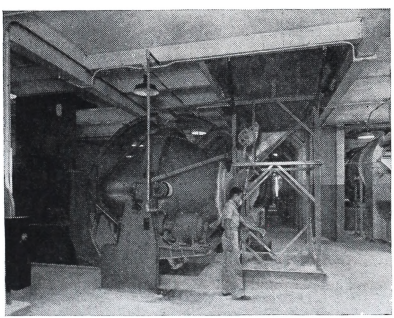
AN admixture of raw materials mostly sand, some soda ash, limestone, borax, "cullets" (broken glass), etc. plus a lot of high temperature heat and a world of scientific research and technical "know-how" — this all adds up to the product we recognize as "glass."

Chemistry and Engineering have played the most important roles in the formation of the structure or foundation on which the world's glass industry of today has been built, and it is upon this same foundation that a new and modern unit of this important industry has been erected and recently put into operation by the San Miguel Brewery.

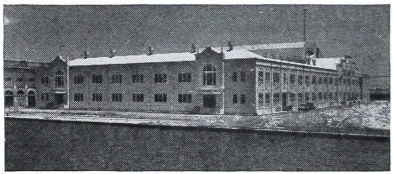
This new Glass Plant unit is conveniently situated on the bank of the Pasig River in the Farola district on a piece of property which the San Miguel Brewery acquired in 1946 from the former Pacific Commercial Company for the sum of ₱2,000,000.

The "Farola Compound" as this property is generally referred to, comprises an area of 50,000 square meters, of which the Glass Plant proper covers an area of 8,540 square meters, with a total floor-space area of almost 2 hectares. Both the main building, which is an imposing structure, built strictly along factory lines but still retaining the traditional San Miguel Brewery motif, as well as the so-called "batch house," behind the main building, have been constructed entirely of steel and concrete at a cost of ₱2,650,000. All construction work was done by local building contractors who, during the period of construction, which lasted about 15 months, employed on the average from 350 to 400 laborers daily.

The production lines of the factory are in the rear of the building and consist of a melting furnace and a maze of intricate and automatically operated machines for making glass bottles. At present there is only one furnace in operation, but provision has been made for two additional ones, one of which is now under construction. The furnace presently operating is capable of melting 80 tons of glass in 24 hours when operated at a temperature of 2700° Fahrenheit.



The Batch Mixing Machine, where the automatically weighed raw materials are thoroughly mixed before being melted in the blasting heat of the furnace.



The new glass factory of the San Miguel Brewery on the Farola, near the mouth of the Pasig River.

The glass is being kept at a constant level in the furnace and the amount present at any time inside this furnace is kept constant at 180 tons. The melting operation, however, is maintained at a continuous flow by automatically feeding the mixture of the sand and other ingredients into the rear of the furnace at the rate required to produce sufficient molten glass to keep the bottle-forming machines, which stand in front of the furnace, in uniform continuous operation.

There are four of these machines operating from the one furnace, and the speed at which they can be operated is in direct proportion to the size and weight of the bottles which are being made. The smaller the bottles, the faster is the production. Working on bottles that weigh 12 ounces, each machine is capable of producing 40,000 bottles in 24 hours; in other words, the four machines are capable of producing 160,000 bottles in this length of time.

The machines are the latest and most modern automatically operated glass-bottle-making machines yet devised. This complete installation, including melting furnace, tempering ovens or Lehrs, and auxiliary equipment such as air compressors, vacuum pumps, conveyors, etc., represents an overall investment of ₱2,403,000.

In order to properly maintain and operate this installation, a complement of highly skilled technical, mechanical and chemical engineers, operators, foremen, inspectors, and laborers are employed. They are all Filipinos, many of whom received their training in the small pilot plant operated by San Miguel Brewery before the war.

The quantity of the various kinds of raw materials entering into the manufacture of glass depends entirely upon the composition and purity of these materials. Representative samples of all materials must pass through the laboratories for exact determination of their composition so that the required quantity of each material can be accurately determined before mixing and a uniformly high-grade finished product may be assured.

Samples of the finished product are taken from the production lines at intervals of 30 minutes, night and day, and likewise submitted to the laboratories where they are subjected to rigid physical tests as well as chemical analysis. Two laboratories, one for physical and the other for chemical determination, are situated alongside the Administration Offices in the front part of the main building facing Pasig River. These two laboratories are elaborately equipped with the most modern scientific instruments and are staffed by competent Filipino chemists who have acquired, through intensive training and study, the special technique pertaining to the analytical control of glass-making.

The first requisite for a successful and economical operation of a glass plant is an abundant supply of high-grade silica sand. After three years of intensive exploration in many different parts of the Islands, a supply of this material was found on the east coast of the island of Palawan, about 60 miles north of Puerto Princesa. The sand deposits in this locality proved to carry a high percentage of pure silica (98%) and for this reason are particularly well suited for making glass. After a thorough survey had been made of the area, it was estimated that the reserves of high-quality sand therein would assure a supply for the continuous operation of the glass plant for a period of from 40 to 50 years.

Steps were immediately taken to establish mining operations in this locality, and the first consignment of sand consisting of 1,000 tons was delivered by barges to the Glass Plant on March 15 this year. Since then, an additional 10,000 tons has been extracted and delivered, to take care of the requirements of the Glass Plant which at present amount to 1,500 tons monthly.

Incidentally, it should be mentioned that since the day of the inauguration of mining operations in Palawan, the population of the small barrio of Del Pilar, where the headquarters are situated, has increased from 40 inhabitants to 400, of which more than 100 men are earning their livelihood by participating in the work of extracting the sand.

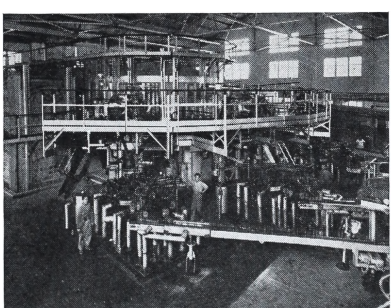
By his establishment of a great new Glass Plant, which he here describes, Mr. Andres Soriano, who is a member of the American Chamber of Commerce, has again demonstrated his faith in the Philippine future and has again shown how capital may be wisely invested here.

The venture into the "heavy industry" bracket by the San Miguel Brewery has not only opened up new opportunities for employment of our people, but fits admirably into our young Republic's economy program of conserving dollar exchange by eliminating importations of glass containers of all sorts. The following figures will substantiate the importance of this statement:

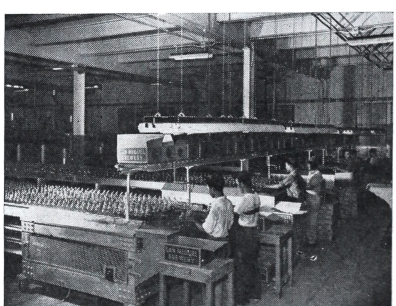
During the year 1946 the value of imported glassware into the Philippines (not including window glass or sheet glass) amounted to ₱3,650,140. The next year, 1947, this amount increased to ₱4,291,385. During 1948 the value of our importations showed a further increase of almost ₱2,000,000 to a total of ₱5,926,528.

Considering that by far the greater part of raw materials entering into the glass manufacture are obtainable in this country, the enormous benefits derived from the establishment of this industry in the Philippines can easily be realized.

In order to effect further economies, the San Miguel Brewery is proceeding with the installation of a modern carton-making plant for making corrugated carton boxes to be used for packaging the finished bottles, and a separate processing plant of the latest type of equipment for applying varied-color ceramic labels and other decorations on glass containers. These two new units will serve as a complement to the glass factory and at the same time eliminate importation of finished products of this nature. But this is another story which can be better told and appreciated after completion of these installations.



Battery of intricate bottle-forming machines which form the molten glass into bottles. These machines are capable of producing 160,000 12-ounce bottles in 24 hours. In the background is the melting furnace which supplies the molten glass to these machines.



The newly moulded bottles are conveyed to the annealing Lehrs for a 2-hour journey through various temperature zones to give them the proper temper; inspection and packing follows.