POPULAR ARTS IN THE 19TH CENTURY

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Research: Claudia Dary

"INDUSTRY".

In: *El Cronista* Volume II No. 59.

Guatemala, November 4, 1890. p.1.

By: Samuel Lúmen.

"The industry in Guatemala is in a state, it can be said, rudimentary; but it can be developed in a very short time in a real and lucrative way, because there are very good elements for it, having only to overcome the indolence that most of the inhabitants suffer, as well as to organize the distribution of the arms in a rational and equitable way, question in whose solution as much the government, as the industrialists and the farmers have the greater and more vital interest.

Raw materials are not lacking in the fertile and rich soil of the country, nor is there a lack of disposition and ability in the inhabitants to dedicate themselves to the most difficult and delicate tasks; but there is a lack of means of communication to transport raw materials at low prices, a lack of elements of industrial instruction, and a lack of religiosity and morality in the fulfillment of the contracts entered into between workers and businessmen.

The efforts of all citizens, whether they are in the category of the governed or in that of rulers, should be aimed at removing these obstacles that oppose the development of national industry, because it is sad, not to say shameful, that Guatemala is lagging so far behind in the universal movement, in modern industry, which can be said to be the thermometer that indicates the degrees of culture and progress of nations in the nineteenth century.

The colonial system brought little, very little industry to all the Spanish-American countries; but most of our brothers from Mexico to Patagonia, as soon as they gained their independence, got down to work and have obtained results which, if they cannot be compared with those shown in the statistics of the United States, are by far superior to those that Guatemala can present to the world, and it must even be confessed that industry here is in decline.

The wool weavings (jerga) of Quetzaltenango, Totonicapán, Santo Tomás Chichicastenango, the Barrio de San Marcos and Tecpán Guatemala, the cotton weavings of some towns of Los Altos, Antigua Guatemala and the capital itself, the hats of San Pedro Pinula, Zacapa, San Pablo and Baja Verapaz, the jarcia of Cobán, Sanarate, San Juan Sacatepéquez and other places, the ordinary earthenware of Totonicapán, Antigua and the capital, were once known and desired articles in the markets of the other Central American republics, and figured in the national export as an appreciable factor. Today, the products of Guatemalan industry have almost disappeared from the export market, but instead, sterling candles from El Salvador, liquors from Mexico with their wool and saddlery artifacts and other products of the Spanish-American industry are imported.

The establishment of a section of industry, arts and crafts, attached to the Ministry of Development, to study in detail and propose the means to give national industry the impetus it deserves, would be one of the ways to make up for lost time.

The schools of arts and crafts in the departments of Guatemala and Quetzaltenango deserve the greatest attention and the most solicitous vigilance because there, better than anywhere else, the solid foundations for the future of industrial progress will be laid.

Much could be said about industrial credit, about the urgency of sending Guatemalan nationals to foreign industrial centers; but besides the fact that these observations only deal with generalities, it is to be hoped that if the industrial section is organized as it should be, as indicated above, it will deal fruitfully with what can only be briefly indicated here."

"THE IRON INDUSTRY"

In: *Diario de Centro América*. Vol. 1 Num. 39

Guatemala, Thursday, September 16, 1880. p.1.

"Iron is the most important of the known metals. This importance is increasing day by day due to the progress of civilization.

When America was discovered, it was noticed that the most savage peoples did not have the slightest idea of iron, their weapons and hunting tools were made of wood, stone, bone, sometimes copper or gold. It is very easy to understand this because all these materials are found naturally prepared, while iron is rarely found in its native state; most often it is found in a state of combination and cannot be extracted except by means of operations that presuppose an advanced civilization. If iron is rarely found in the native state, on the contrary its minerals are very numerous in nature, and in this country it is very common in the sulphide state (pyrite) that is to say combined with sulphur, in the oxide state (combined with oxygen), in the carbonate, sulphate, silicate, &&. Almost all the clay soils of Guatemala are ferruginous, after a strong downpour the oligist iron (iron sesquioxide) is found in the sand dragged by the currents and avenues.[1]

In the department of Chiquimula there is an abundance of ***magnetic oxide***, the best of the iron ores, probably the same one that for many years has been feeding the ***Catalan*** furnaces of Metapán (Salvador).

[1] The ***pyrites*** that are so common were not formerly used for the extraction of iron; but today, thanks to the Swedish engineer, **M**. Nordenskjold, who uses steam to separate the sulphur, an excellent quality of sweet iron is extracted from the pyrites of Finland and the Oural; we have very close to the capital immense veins of iron sulphide or pyrite that could be exploited by this process.

The exploitation of an iron ore located at a short distance from the capital or immediately to a railroad would make the fortune of a company, reporting an immense good to the industry of the country. We have been assured that there still exists in the vicinity of Petapa the remains of a Catalan furnace that must have functioned at the time of the Spanish domination. It is probable that by searching intelligently, the mine from which the material was extracted could be found. When we take into consideration the unaccountable applications of the metal that is today ***the king of metals***, and at the same time the high price at which it is forced to sell it in this country due to the freight that increases its value a hundredfold, under any form that comes from abroad, it is not understandable why it has not been tried so far to create iron ore foundries in our country.

The artisans of Guatemala who make their living in blacksmithing, and whose skill cannot be denied, cannot advance because of the high price of iron in bars or sheets, nor is it possible for them to compete with foreign hardware and locksmiths, and yet we have seen very fine, very finished and much more solid works leaving the workshops than foreign artifacts of the same kind. The pound of wrought and worked iron costs ***two and a half reales*** in Guatemala and the blacksmith earns almost nothing.

At all times the blacksmiths of the country have been notable for their skill. There are still in Antigua Guatemala and even in the capital precious samples of locksmithing. The iron of Metapan is more esteemed than that of Europe. The blacksmiths of El Salvador work with this metal very fine works of some fame, such as daggers, knives, links, spurs, &&.

The intelligent exploitation of iron ore would give us this metal in its three commercial forms, wrought iron, steel and cast iron, three raw materials for a great number of factories; machinery, agricultural implements, iron sheet, wires, nails, bladed weapons, pipes for water and gas conduction, &&. Then the material progress would not find any obstacle and the industry of the country, independent of foreign industry, would provide welfare to a great number of honest and hard-working artisans."

"**TINSMITHING**"

In: *Diario de Centro América*. Col. I No. 52

Monday, October 4, 1880. p. 2.

"What is called ***Tinplate*** is tinned iron, here is how it is prepared: iron plates thinned by the rolling mill and very well deoxidized are immersed in a bath of melted tin where they remain for an hour and a half; but it is necessary that they have been previously immersed for an hour in melted tallow; it is also necessary that the metallic bath is covered with grease. In this way the iron dries and is protected from oxygen before and during tinning.

As the iron sheets thus prepared are covered by an excess of tin, they are passed to the ***washing process***. This operation consists of immersing the sheet in a bath of very pure tin, removing it immediately, brushing it, and then immersing it in another bath of tin and in molten grease; finally, it is cleaned with bran (draff).

Tin plating is well done when the surface of the sheets does not offer any solution of continuity; because, in the contrary case, tinplate gets moldy more easily than non-tinned iron. This comes from the fact that iron in contact with tin, being electro-positive, oxidizes very quickly; this is the opposite of what happens with zinc-coated iron (zinced or galvanized). For this same reason tinplate does not last when it has been cut; oxidation starts at the edges and spreads rapidly over the entire surface.

The tinsmith's trade is one of the oldest in Guatemala, only a few years ago this industry has improved in a remarkable way, and will probably advance much more if the tinsmiths try to imitate foreign models and work more solidly. It is known that tinplate is used to manufacture a great number of utensils of general use, such as coffee pots, lanterns or lanterns, washers, rollers, funnels, cups, basins, troughs, watering cans, etc., the most ordinary objects are worked with the tinplate from the crates in which certain fine merchandise comes and which the merchants sell to the tinsmiths; but in the workshops of some importance, the tinplate from the crates is used only in some cases, when the person who orders an object to be made supplies

this material. Nowadays, a thicker tinplate is being used than the one that was used in the past, and in this way more artifacts are obtained that are as solid as the foreign ones.

The installation of a first-class tinsmith's shop can be accomplished with a capital of 500 to 600 pesos; but there are many workmen in the capital whose tools do not even represent a quarter of this sum.

Good tinsmiths also work with copper, particularly brass (yellow copper, an alloy of copper and zinc), and use zinc to make buckets, baths or footbaths, troughs, watering cans, gutters, etc.

The number of tinsmiths' workshops is estimated at 20 to 24, counting those that barely deserve the name of workshop.

The best established and most reputable tinsmiths are those of the following masters: Mr. Nazario Rivera, who also works with copper, Mr. José Angel Escobar, Mr. Pedro Villalobos, Mr. Gregorio Iriondo, Mr. Buenaventura Morán, Mr. Estanislao Aragón, Mr. Pedro Morán and Mr. Juan Iriondo.

We will also mention in passing the American tinsmith shop run by Captain Storm.

We will not conclude this quick review without briefly publishing the procedure used by foreign tinsmiths to give some of their artifacts a kind of paint or varnish called ***metallic moiré***. The object thus painted has a pleasing appearance and is better preserved than those of pure tinplate.

The surface of tin-plated iron would show a crystallization by large sheets or leaves, if it were not covered by a light tin film. By removing this film by means of an acid, the crystallization manifests itself and the tinplate presents a particular appearance which is called metallic ***moiré***.

To make moiré, a sheet of tinplate is suspended horizontally over an oven and heated until it takes on a yellow hue, then it is wetted (what tinsmiths call degreasing) with dilute sulfuric acid (1 part acid, 2 parts water) after having washed

and drained the sheet, an acid liquor is applied over it with a sponge or a kind of wool brush, usually containing aqua regia. Immediately after the action of the acid, the surface of the tinplate is covered with very wide febriform sheets. These sheets can vary in size and shape according to certain artifices, they will have the appearance of granite, if before applying the acid composition the tinplate is heated so as to melt the tin, and if after having sprinkled salt powder of ammonia, it is quickly immersed in cold water, stars will be obtained, if on the heated sheet a few drops of cold water are projected.

In all cases the action of the acid should not be prolonged too much and to preserve the surface from oxidation it should be covered with a white or colored varnish. ***Copal*** varnish is the most commonly used.

We have published the moiré recipe at the request of some master tinsmiths.

Manufacturers of varnished tinplate use one of the following compositions to obtain moiré.

Water	Salt to eat	Azotic acid	Muriatic acid	Sulfuric acid
8	4	2	“	“
8	“	2	3	“
8	“	“	2	1
4	“	2	2	“
3	“	2	1	“
3	“	1	2	“
8	“	0.1	“	4