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# **THE ARGENTINE IRON AND STEEL INDUSTRY AND TRADE**



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## FOREWORD

Argentina is one of the largest markets for iron and steel in various forms, and notwithstanding the presence of iron ore in the country it remains essentially dependent upon the producing countries of the world for most of its requirements. A large proportion of the imports is in raw or semifinished material, owing to the demand made by the extensive local fabrication of finished products.

The imports of iron and steel products for 1928 and 1929 amounted to over 1,000,000 tons each year, but for 1930, owing to the unfavorable business conditions, the receipts declined to 800,000 tons. The United Kingdom has been the principal source of the country's imports, with Germany, Belgium, France, and the United States following in the order given.

The iron and steel division of the bureau keeps in touch with developments in the iron and steel business and industry in all countries, and persons interested are invited to communicate with the bureau.

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*Bureau of Foreign and Domestic Commerce.*

NOVEMBER, 1931.

# THE ARGENTINE IRON AND STEEL INDUSTRY AND TRADE

By American Trade Commissioner Charles H. Ducoté, Buenos Aires

## INTRODUCTION

Although not a producer of pig iron or crude steel, Argentina annually imports, both for direct consumption and for further fabrication or elaboration, iron and steel products in quantities which in some years have amounted to 1,000,000 tons. Only an extensive industrial and agricultural development would make so great a tonnage necessary, and the number of outlets thus offered is large indeed. It is only natural that so large a market should have developed certain definite characteristics and should have established a number of preferences, a knowledge of which is of prime importance to successful trading therein.

In the following pages the local Argentine iron and steel working and fabricating industry is briefly described, and the trade in each of the principal classes of products is discussed. The data should be valuable not only to that part of American industry seeking sales outlets in Argentina, but also to that part interested in learning of the development of a local metal-working industry there.

## THE ARGENTINE INDUSTRY

### DOMESTIC PRODUCTION

The domestic production of crude iron and steel in Argentina is of negligible importance, although deposits of iron ore of considerable extent are known to exist in the Provinces of Cordoba, Santiago del Estero, and Tucuman. The deposit of iron ore known as Filo de la Cortadera, with a calculated area of 900 square meters, is the most important. The ore from this deposit is of such quality that in order to obtain 1 ton of pig iron it would be necessary to utilize 2.1 tons of ore, 1.3 tons of coke, and 1.5 tons of limestone. Not only would it be very costly to produce iron from this ore, but high freight rates (estimated to be about 40 paper pesos (roughly \$15) per ton) from the mine to Buenos Aires, the center of demand, would have to be added to the cost of production, making the total cost several times that of imported pig iron. Nor could this ore be commercially or economically reduced by magnetic or mechanical methods with any substantial saving in production cost. As conditions applying to other ore deposits in the country likewise result in excessively high production costs, all supplies of raw iron required in Argentina must necessarily be imported.

## NUMBER OF FOUNDRIES

According to the Argentine Government statistics, the 98 foundries reported in the industrial census of 1913 consumed approximately \$1,600,000 (United States currency) worth of raw materials brought in from foreign countries and \$400,000 worth of domestic raw materials. Since the time of this census, the growth of the foundry industry has been so rapid that the data given above are of little more than historical interest. Official statistics covering the present situation, or conditions in the recent past are nonexistent; however, figures concerning some of the most important establishments give some indication of the size and importance of this industry.

According to estimates there are now about 82 foundries in Argentina, the large majority of which, however, are quite small. Among the large plants are those operated by the principal railway companies, all of whose shops have gray-iron foundries and facilities for casting copper, brass, and other soft metals. In general, however, they secure what they require from the several steel foundries in Buenos Aires. Pig iron is imported in quantity, and scrap iron is secured from old and dismantled equipment.

## FOUNDRIES OPERATED BY RAILWAYS

Among the leading Argentine railroad shops are those of the Southern Railway (Buenos Aires Great Southern Railway or Ferrocarril Sud). The foundry operated by this company consists of one large bay with several small additions. It is served by three 5-ton traveling cranes and five hand cranes. It produces gray-iron castings of all descriptions, including such articles as brake shoes and heavy cylinders. Both hand and machine molding are employed, and all patterns and cores are made in the shops. The cupola has a capacity of about 5 tons of iron per hour, and a usual monthly run is about 200 tons. The furnace charge is usually made up of 70 per cent scrap iron and 30 per cent new pig iron.

The Gorton shops of the Central Argentine Railroad (Ferrocarril Central Argentina), located at Perez about 10 miles from the city of Rosario, are considered to be the largest and best-equipped locomotive shops in South America. The foundry and pattern shops are contained in a building measuring 125 by 38 meters. The three foundry bays are provided with four electric traveling cranes, one of 10 tons, two of 3 tons, and one of 1 ton capacity. The iron foundry is equipped with two cupolas, each capable of producing 5 tons of metal per hour. The mixture used is 35 per cent pig iron to 65 per cent of selected scrap. This foundry supplies castings to the Central Argentine shops at Rosario and to other departments of the railroad as well, the heaviest iron castings ordinarily made being those for locomotive cylinders. The Central Argentine shops rework all steel scrap into ingots under the steam hammer.

The foundry in the repair shops of the Buenos Aires Western Railway (Ferrocarril Oeste), includes two 3-ton cupolas and three Morgan tilting oil-burning furnaces for brass, two of which are of 600-pound capacity and one of 400 pounds. The foundry production runs from 80 to 100 tons of iron and 30 to 50 tons of brass per month. The largest iron castings now are of about  $3\frac{1}{2}$  tons, but it is possible to make larger if required.

The Central Cordoba Railway (Ferrocarril Central de Cordoba) has a completely equipped group of repair shops at Alta Cordoba, a suburb of the city of Cordoba. The foundry connected with these shops has one cupola with a capacity of 4 tons. Here pig iron is more extensively used for melting with but a small percentage of scrap iron added. There is also a large forge shop capable of manufacturing springs, buckles, drawbars, buffers, and bolts, as well as bar steel from old boiler tubes. The tubes are flattened and cut into short lengths, after which they are piled in layers of alternate direction and securely bound into a cube. After being brought to a white heat this cube is forged under the steam hammer into pigs and bars.

Three railway shops are operated by the Buenos Aires and Pacific Railway (Ferrocarril Buenos Aires al Pacifico), the main shop being located at Junin. Data are not at present available concerning the foundry equipment now in use, although it is known that this plant, previous to the extension that was to be made some time ago, consisted of two cupolas with a capacity of about 4 tons an hour each. The mixture then used was 25 per cent pig iron and 75 per cent scrap iron, the heaviest castings made ranging up to 4 tons, but the existing capacity permits work up to 8 tons in weight. Another workshop of this railway, located in Mendoza, had a small foundry, but the bulk of the castings required by the system were made in the Junin foundry and later distributed to the other shops. Normally the furnace charge was made up entirely of scrap, and scrap steel was also reformed into billets for all sorts of general use. It has been the practice to cast on new sections of broken iron or bronze castings, and this practice is believed to be followed at the present time.

The Entre Rios Railway (Ferrocarril Entre Rios) and Argentine North Eastern Railway (Ferrocarril Nord Este Argentina) also have foundries in their repair shops, that of the former having a capacity of 184 tons of iron, while that operated by the latter has a capacity of 148 tons of iron. The General Railway of Buenos Aires (Compañia General de Ferrocarriles en la Provincia de Buenos Aires) also maintains a foundry, this being equipped with one cupola of 1½ tons capacity. Both hand and machine molding are employed. The foundry of the Santa Fe Railway (Compañia Francesa de Ferrocarriles de la Provincia de Santa Fe), working in connection with its shops, is equipped with one cupola of 4 tons per hour capacity but whose output has averaged only 24 tons of iron per month. The Buenos Aires Provincial Railway (Ferrocarril Provincial de Buenos Aires), in its new shops at La Plata, has an important foundry installation concerning which data are not at present available.

Other than the establishments mentioned above, only one other railway foundry is worthy of particular mention, this being the one maintained in connection with the railway workshops of the Argentine State railway organization, known as the Central Northern Railway (Ferrocarril Central Norte Argentina). The iron foundry, located at Tafi Viejo, has one 3-ton and one 1½-ton cupola with a combined average weekly output of about 60 tons. The largest castings usually made are of 2 tons, though larger pieces can be handled. Machine molding is used in making grate bars, brake shoes, and other small parts in quantity.

## TALLERES METALÚRGICOS SAN MARTIN

The most important organization in the Argentine metallurgical industry is the firm known as Talleres Metalúrgicos San Martín which was established several years ago with a capital of 6,000,000 gold pesos. The concern was formed through a fusion of the two firms Talleres Metalúrgicos (antes, Rezzonico, Ottonello, y Cia.), and Talleres San Martín, and by the combination thereof with the establishment operated by Pedro Vasena e Hijos. Talleres Metalúrgicos San Martín has become such a strong factor in the local industry, and has such a large influence on the import trade in iron and steel semimanufactures as well as in some manufactured lines, that its operations are worth consideration.

The firm operates two important plants in the vicinity of Buenos Aires, one known as the "General Bosch" plant and the other called the "San Francisco" establishment. These together have an area of 147,000 square meters. The first is engaged in the production of cast-iron pipe by the centrifugal system (capacity 6,000 metric tons per year); sanitary ware such as bath tubs, lavatories, etc.; wood screws, bolts, and nuts (capacity 6,000 metric tons per year); miscellaneous screw machine products; general iron foundry products; galvanized-iron sheets (capacity 40,000 metric tons per year), etc. The "San Francisco" factory is principally occupied with the production of boilers and steel castings, the drawing and galvanizing of wire, the production of wire nails, of steel shapes and beams, barbed wire, a few agricultural implements such as wheelbarrows, spades, harrows, etc., and has a section concerned with metal frame-structure construction, capable of handling 30,000 metric tons per year. The total production capacity of the two plants is said to be in the neighborhood of 125,000 tons of iron and steel products per year.

The main furnace installations of the Talleres Metalúrgicos San Martín consists of two Siemens-Martin units of a capacity of 15 tons charge each, while there are also installed three so-called "lamination trains," of 450, 300, and 200 millimeters. These installations have a capacity of 20,000 tons per year.

Over 400 people are employed in the management and technical divisions of the firm, while in the shops a total of 1,800 men and women are employed in normal times.

The consumption of pig iron by the Talleres Metalúrgicos San Martín has amounted to from 500 to 800 tons per month. Scrap iron is also used in the furnace charge in the proportion, roughly, of about 20 per cent scrap to 80 per cent of new pig iron. The firm uses large quantities of pig iron each year in the manufacture of cast-iron pipe. One of the types of iron most used has the following analysis: Carbon 3.28 per cent, manganese 0.51 per cent, silicon 2.82 per cent, phosphorus 0.29 per cent, sulphur 0.01 per cent.

## OTHER FOUNDRIES

As stated above, there are about 82 iron foundries in all Argentina, of which about 60 are located in Buenos Aires. Five foundries also cast steel, these being Cirili y Cia., Cia. Industrial de Electricidad, La Cantabrica, Juan Pinoges, and Talleres Metalúrgicos San Martín. The third and fourth mentioned also roll small steel sections used in building construction. A variety of products are manufactured in

Argentine foundries, among them being repair parts for agricultural machinery, wheels, irons, pump parts, iron columns, bath tubs and lavatories, valves, pulley wheels, certain industrial machinery parts, stoves, and many other products. Import trade figures in reference to pig iron seem to indicate a growing domestic industry in the manufacture of products such as mentioned above. Firms handling materials used by foundries report, however, that these establishments during the last few months of 1930 and the beginning of 1931 have been restricting their operations very considerably, so that a decline in imports of pig iron during 1931 and in the output of this foundry industry may be expected as compared with 1930.

#### ROLLING MILLS

There are at the present time two rolling mills in Buenos Aires, whose capacities for a number of years have been about the same. The largest mill is operated by Juan Pinoges and has a capacity of about 15,000 tons per year. The other is owned by La Cantabrica S. A., and has a capacity of about 6,000 tons per year. The larger mill rolls profile I beams from 8 to 16 centimeters (3.15 to 6.30 inches) in depth. Although round and square bars were formerly produced, the entire production of the plant is now practically made up of I beams—the largest piece handled attaining 10,000 kilos in weight. The plant operated by La Cantabrica S. A. rolls bars from steel scrap, including rounds and squares from five-sixteenths inch to 3 inches in diameter, flats up to 6 inches by 1 inch, tees up to 2 inches, angles up to 2 inches, and half rounds up to 1 inch. Most of the production of this mill is utilized in its factory in the production of agricultural implements and equipment. A plan was recently worked up by La Cantabrica S. A., for a large new modern establishment with a capacity of 25,000 tons of various rolling-mill products per year. However, owing to various factors, including the lack of an import-tariff schedule on the products to be made sufficiently high to permit of their being manufactured at competitive prices, the project has been held up. La Cantabrica S. A., also makes metal fence posts and stiffeners and weaves fence mesh from steel wire imported either from the United States or from Europe, depending upon the comparative prices quoted by manufacturers in those countries. The concern consumes considerable quantities of galvanized-corrugated steel for water and other special tanks for agriculture and stock raising. It also has a gray-iron foundry with two cupolas, one of 1,500 kilos and the other of 3,000 kilos capacity per hour. With the latter facilities, the concern molds ornamental ironwork, which it combines with its mill products in producing metal railings of great variety.

A plant for fabricating structural steel, formerly operated by Pedro Vasena e Hijos, had an average capacity of 800 tons per month of fabricated or 900 tons of straight beam work. Another plant of Talleres Metalúrgicos had an average monthly capacity of 600 tons of fabricated steel. With the fusion of these two concerns some years ago the rolling of shapes was discontinued. The new firm, Talleres Metalúrgicos San Martín, is, however, important in the fabrication of structural steel buildings, and its relations with important Belgian and Luxemburg producers allow it to purchase the necessary shapes, plates, etc., at lower prices than they could be produced here. A large percentage of the fabricated steel and sections used in steel-frame

buildings erected in Argentina is now supplied by Talleres Metalúrgicos San Martín. In addition to this firm, there are about a dozen other concerns of importance making a business of steel erection in Buenos Aires and vicinity, contracting for the erection of structural works in a manner similar to the practice followed in the United States. Construction machinery and tools of the most modern types are being used more and more by these concerns.

#### GALVANIZED SHEETS

The total Argentine consumption of corrugated galvanized-iron sheets has been estimated to be about 100,000 tons during a normal year. Consumption in the past year was considerably less, amounting to only about 25,000 tons. Such sheets are prepared locally by several firms, three of which (Anglo-Argentine Iron Co., Talleres Metalúrgicos San Martín, and John Lysaght) are the most important; together they manufacture almost all of the material of this kind made in the country. Two or three other firms also work along this line, but their entire production is so small that their output does not greatly affect the domestic or foreign industry.

The Anglo-Argentine Iron Co. was founded on January 1, 1925, as an Argentine company, having been previously connected with other than manufacturing phases of the galvanized sheet trade in Argentina for the past 30 years. An indication of the extent of the operations of this firm may be obtained from the following quotation from an article which appeared some months ago in the local press:

The brand of the Anglo-Argentine Iron Co., "Ostrillon," is known from end to end of the Republic, and the company itself, which needs no introduction to users of galvanized-iron sheets, is familiarly known to all its clients as the "Anglo." The opportunity which presented itself to the founders of this undertaking was that of importing the black iron sheets and zinc material, organizing a modern galvanizing works in a suitable location, training the necessary factory staff to the unfamiliar performance of the then unfamiliar tasks, and organizing the entire processing industry on lines of modernity and efficiency. The galvanizing works with their auxiliary departments, represent the last word in modern systematic factory organization, and in this as well as in other respects can favorably bear comparison with similar works anywhere in the world.

In addition to the manufacture of galvanized sheets for its clients, the company has an arrangement with the suppliers of the "Dolphin" and "Princess" brands, under which they bring out those sheets in the black from Great Britain and galvanize them here for the account of Messrs. Partridge, Jones & John Paton (Ltd.). The combined production of the works under this arrangement is enormous and comparable only with that of the largest similar establishment in the world. At present (May 9, 1930), owing to the depression in trade, they are working much below capacity, but normally they employ between 600 and 700 men, and if necessary they could turn out sufficient galvanized sheets to supply the whole of the Republic. Furthermore, in order to assure regular supplies of raw material, the company has acquired a substantial interest in the Shelton Iron, Steel & Coal Co. (Ltd.) of Stoke-on-Trent. Under these arrangements, and with the recent extensions of its works and installations, the company is obviously in a strong position, from which it will not only be able to keep pace with, but actually aid and contribute to the future development of the Republic.

The works, as recently extended in response to the actual and potential requirements, now occupy an area of 20,000 square yards, the area being entirely accounted for by paved roadways and concrete flooring. The factory is equipped with a network of Decauville lines, and by means of a complete system of electric cranes and the light trucks circulating on the Decauville lines the conveyance of any load from any part of the works to any other is reduced to the last degree of economy and simplicity.



The article further states that the flat galvanized sheets, after being conveyed to the corrugation shop, are taken care of by three corrugating machines with a capacity of approximately 8,000 kilograms of sheets per hour per machine. This quantity represents approximately 16,000 square feet so that in every working hour the three machines can turn out nearly 50,000 square feet of corrugated material. The plant of the Anglo-Argentine Iron Co. has 11 galvanizing tanks, and it is estimated that its installations turn out 50 per cent of the domestic production of corrugated sheets.

The galvanizing plant of the Talleres Metalúrgicos San Martín is second in importance and has a maximum production capacity of about 40,000 tons of sheets per year. This establishment operates 5 galvanizing tanks, and is estimated to produce about 35 per cent of the sheets galvanized and corrugated in Argentina.

The firm of John Lysaght (Ltd.) has two galvanizing tanks and other installations of such capacity that the company supplies about 15 per cent of the domestic production.

All of the firms produce, almost solely, sheets of 24 gage with 3-inch corrugations and eight corrugations per sheet. The sheets come in even foot lengths, from 5 to 12 feet. There is good distribution of sales demand for all lengths, but the sales of the 11-foot length are least of all. Prices on domestic sheets have varied somewhat during the past year owing to fluctuations in exchange which influence the laid-down cost of the black sheets used in their manufacture. Quotations have been as low as 27 centavos paper, per kilo, and as high as 34 centavos. On orders of any size, a 5 per cent discount is allowed. Locally produced sheets, however, do not appear to be of very high quality as the galvanized coating is made as thin as possible consistent with complete coverage and uniformity of coating.

#### CAST-IRON PIPE

Cast-iron pipe is also manufactured locally by Talleres Metalúrgicos San Martín, whose total production capacity is placed at about 6,000 metric tons per year. The quality of the domestic-made pipe is said to be inferior to the average of the pipe imported from the United Kingdom, but large sales of locally produced pipe are made because of the considerably lower price at which such pipe may be offered. A large proportion of the locally made pipe consists of soil pipe or "caños de ventilacion" as they are called locally, in the two principal sizes (2½ and 4 inches in diameter) in greatest demand in this market.

#### WIRE AND WIRE PRODUCTS

Several firms engage in the manufacture of various wire products such as poultry netting, barbed-wire fencing, etc., the most important of these being Justo Hnos. y Cia., Talleres Metalúrgicos San Martín, Viuda de Juan Spraeico S. A., and Jorge Yuri y Cia.

The firm Justo Hnos. y Cia. (Ltda.) has probably the largest plant of this kind in the country and makes a wide variety of wire fencing, netting, and similar products as well as barbed wire. Practically all of the machinery in this plant was purchased a few years ago from a large American manufacturer of wire fencing and barbed wire. The present owners have endeavored to operate the plant along the lines

followed by the American firm and apparently have been meeting with some success. The total production capacity is said to be 40,000 meters of fencing per day in more than 150 different types, and from 66 centimeters to 1 meter 58 centimeters in height. Justo Hnos. y Cia. (Ltda.) naturally makes use of enormous quantities of wire, and states that when American prices are comparative they almost always import the wire they require from the United States instead of from manufacturers in Europe.

Talleres Metalúrgicos San Martín formerly manufactured barbed wire as well as wire fencing and netting but has discontinued the former class of work and now makes in its wire shops only poultry netting and wire fencing. The firm is important in the wire-nail business and, taking into consideration all of its activities involving the use of wire, must purchase very large amounts each year.

The firm Viuda de Juan Spraeñico S. A. is also important in supplying the Argentine demand for wire fencing, netting, and like products. In addition to these activities, the concern also does much wire drawing and galvanizing.

#### BOLTS AND NUTS, SCREWS, AND RIVETS

The Argentine consumption of screws, bolts, and nuts is supplied both by importation and by local manufacture. The domestic production of such materials is largely in the hands of three firms, of which Talleres Metalúrgicos San Martín is by far the most important, followed by Bromberg y Cia., and Pablo Maspero e Hijos, in order. The production of this class of material by Talleres Metalúrgicos San Martín is said to be about 10,000 tons per year, and it is believed that on this basis the firm makes about 50 per cent of the total domestic production. Talleres Metalúrgicos San Martín began the manufacture of its line of bolts, etc., about the end of 1929 and in a short time assumed the position of first importance in local bolt manufacture. The products turned out by this firm consist, in the main, of carriage bolts and machine bolts and nuts, but there is also some production of screws and the smaller sizes of rivets.

Bromberg y Cia. is especially important in the manufacture of hexagonal nuts and machine bolts and is recognized as a leader in the sale of this type of bolts and nuts. This firm some years ago became the representative of a well-known German concern manufacturing these products, and sales proceeded so satisfactorily that an agreement was entered into whereby the bolts and nuts would be manufactured in Argentina by the local firm under the brand mark of its German principal.

The firm Pablo Maspero e Hijos, although still very much smaller than either of the other two, manufactures a wide range of bolts, nuts, and screws. This concern has also expanded its activities during the past two or three years, so that all three firms mentioned herein have had an important influence on the importation of American and other products of this class.

## FINANCIAL DATA ON PRINCIPAL METALLURGICAL FIRMS

Interesting data were published recently by the commercial newspaper *El Avisador Mercantil* concerning the financial results of the operations of several of the principal firms in the Argentine iron and steel trade. Information covering the years ending June 30, 1929, and 1930, are shown in the table below.

### FINANCIAL DATA CONCERNING PRINCIPAL ARGENTINE IRON AND STEEL FIRMS, 1929 AND 1930

[Figures in paper pesos except when otherwise indicated]

Company	Capital, 1929		Capital, 1930		Profit or loss (-)	
	Subscribed	Paid in	Subscribed	Paid in	1929	1930
Anglo-Argentine Iron.....	275,000	275,000	2,500,000	2,500,000	1,052,027	749,040
T. M. San Martin.....	4,000,000	4,000,000	4,000,000	4,000,000	294,071	397,481
Cia. Thyssen (Ltda.).....	( <sup>1</sup> )	( <sup>1</sup> )	3,000,000	3,000,000	( <sup>1</sup> )	-481,860
Armco Corporation.....	<sup>2</sup> 50,000	<sup>2</sup> 50,000	<sup>2</sup> 50,000	<sup>2</sup> 50,000	<sup>2</sup> -9,113	<sup>2</sup> 7,388
British Structural Steel.....	<sup>3</sup> 1,145,455	<sup>3</sup> 1,145,455	<sup>3</sup> 150,000	<sup>3</sup> 150,000	<sup>3</sup> 296,666	<sup>3</sup> 659,396
Ferrostaal.....	100,000	100,000	100,000	100,000	20,731	-44,188
Longovica.....	<sup>4</sup> 20,000,000	<sup>4</sup> 20,000,000	<sup>4</sup> 20,100,000	<sup>4</sup> 14,025,000	<sup>4</sup> 206,273	<sup>4</sup> 24,833
Spraefco.....	( <sup>1</sup> )	( <sup>1</sup> )	1,800,000	1,800,000	( <sup>1</sup> )	253,466
La Union.....	700,000	700,000	700,000	700,000	109,284	90,179
Est. Klockner.....	1,000,000	1,000,000	1,000,000	1,000,000	438,683	219,977
Krupp S. A.....	200,000	200,000	200,000	200,000	-712	-14,423
Cia. Industrial de Electricidad.....	600,000	600,000	600,000	600,000	16,454	15,483
Electro Metalurgica.....	( <sup>1</sup> )	( <sup>1</sup> )	1,900,000	1,900,000	( <sup>1</sup> )	-259,036

<sup>1</sup> Not given.

<sup>2</sup> In United States dollars.

<sup>3</sup> In pounds sterling.

<sup>4</sup> Capital given for parent firm.

<sup>5</sup> In French francs.

## THE DOMESTIC DEMAND AND IMPORT TRADE

Despite the presence of the various productive facilities previously described Argentina remains essentially dependent upon the several steel-producing countries of the world for a large share of its requirements. Some of virtually every class of product is imported, although, in some instances, the quantities received are now quite small, as the result of a growing local production. This same production has, in other instances, resulted in a considerable increase in the receipts of several classes of products—in commodities which constitute the raw materials on which the Argentine steel-working industry operates.

Of the 14 groups into which Argentine imports of all commodities are divided, that made up of "Iron and steel, and manufactures" is fourth in importance. Imports of material within this classification, during 1928 and 1929, amounted in customs tariff valuation to 108,223,-820 and 102,989,078 gold pesos, respectively. (One gold peso equals \$0.96 United States currency at par.) Total customs tariff valuations of 848,053,645 and 881,511,484 gold pesos, respectively, were registered for all 14 groups during the two years aforementioned. Iron and steel products, therefore, make up roughly about 12 per cent (in value) of Argentine imports.

Official import statistics are divided into two general classifications, namely, "Iron and steel in various forms," and "Iron and steel manufactures." The first is the most important and is treated at length herein; however, for purposes of general comparison of the relative importance of the various subordinate groups, there are

given below figures on imports of material under both classifications during the last two years for which information is available.

ARGENTINE IMPORTS OF IRON AND STEEL AND MANUFACTURES

[Figures give customs valuation in Argentine gold pesos]

Items	1928	1929
<b>Iron and steel in various forms:</b>		
Unmanufactured iron.....	808, 227	846, 438
Products of lamination.....	54, 654, 029	52, 260, 156
Iron elaborated into other forms.....	26, 379, 770	25, 145, 801
<b>Total.....</b>	<b>81, 842, 026</b>	<b>78, 262, 396</b>
<b>Iron and steel manufactures:</b>		
Firearms.....	1, 039, 184	1, 155, 529
Kitchen ware, etc.....	2, 631, 317	2, 466, 088
Cutlery.....	1, 410, 684	1, 356, 832
Hardware.....	1, 575, 597	1, 189, 084
Tools.....	3, 858, 332	3, 762, 378
Miscellaneous articles of iron and steel.....	15, 868, 680	14, 306, 772
<b>Total.....</b>	<b>26, 381, 794</b>	<b>24, 736, 683</b>
<b>Grand total.....</b>	<b>108, 223, 820</b>	<b>102, 989, 078</b>

Figures for 1930 show that during that period iron and steel products having a customs-tariff valuation of 83,253,000 gold pesos were imported as against 102,989,078 gold pesos during the year 1929—a reduction of 19.2 per cent. That the decline in imports has continued into the present year is shown by the fact that the total value of the iron and steel products brought in during the first three months of 1931 was 16,328,380 gold pesos against 22,465,720 pesos for the first three months of 1930, a decrease of some 27 per cent.

Imports of "iron and steel in various forms" during the years 1928 and 1929 amounted to 1,083,864 and 1,040,100 metric tons, respectively. The official statistical classifications grouped under this heading number 69, only 20 of which, however, are of major importance. These account, in total, for over 95 per cent of the aggregate tonnage of imports within this group. Detailed figures for the years 1928 and 1929 and the first nine months of 1930 (these being the latest periods for which data are available) concerning imports of material under the 20 leading classifications are as follows:

ARGENTINE IMPORTS OF "IRON AND STEEL IN VARIOUS FORMS"

[In kilos]

Items	1928	1929	1930 <sup>1</sup>
Pig iron for founding.....	25, 862, 887	26, 946, 819	28, 813, 398
Bars and flats.....	186, 731, 728	172, 525, 946	108, 989, 081
Special steel bars, plates, and flats.....	13, 314, 261	18, 418, 453	16, 468, 441
Sheets and plates.....	160, 845, 556	151, 173, 990	88, 122, 288
Galvanized sheets.....	27, 548, 712	23, 608, 881	10, 124, 816
Straps and hoops.....	10, 363, 265	13, 041, 202	9, 139, 049
Shapes L. T. U. Z. and others.....	97, 753, 668	101, 517, 632	57, 498, 111
Beams.....	69, 895, 113	76, 840, 260	39, 178, 813
Fabricated columns, frames, trusses, etc.....	21, 500, 727	20, 945, 078	12, 911, 828
Steel rails.....	192, 646, 077	166, 711, 260	109, 223, 945
Rail fishplates.....	17, 398, 531	11, 688, 406	6, 983, 801
Cast-iron pipe up to 76 millimeters diameter.....	4, 533, 564	5, 836, 444	6, 554, 369

<sup>1</sup> Figures for first 9 months only.

## ARGENTINE IMPORTS OF "IRON AND STEEL IN VARIOUS FORMS"—Continued

[In kilos]

Items	1928	1929	1930
Cast-iron pipe over 75 millimeters diameter.....	23, 213, 696	33, 930, 425	10, 863, 780
Wrought pipe.....	30, 082, 875	29, 016, 135	20, 323, 206
Galvanized pipe.....	22, 672, 125	29, 375, 799	13, 121, 496
Iron and steel wire to No. 14, not galvanized.....	37, 192, 318	35, 590, 240	20, 111, 579
Iron and steel wire to No. 14, galvanized.....	58, 562, 542	47, 477, 561	29, 980, 435
Barbed wire for fences.....	29, 120, 662	24, 455, 200	13, 524, 635
Wrought nails.....	8, 458, 885	6, 772, 876	4, 326, 635
Bolts with or without nuts, not galvanized.....	13, 320, 147	12, 707, 823	6, 362, 582
Total.....	1, 041, 146, 329	1, 008, 265, 207	612, 621, 918
Unenumerated items.....	42, 718, 185	31, 835, 179	( <sup>a</sup> )
Grand total.....	1, 083, 864, 514	1, 040, 100, 386	( <sup>a</sup> )

<sup>a</sup> Figures not yet available.

The demand for iron and steel products of the classes indicated above, is almost entirely supplied by manufacturers in five countries—the United Kingdom, Germany, Belgium, France, and the United States—the imports from each of these during 1928 and 1929, having been as follows:

## ORIGIN OF ARGENTINE IMPORTS OF "IRON AND STEEL IN VARIOUS FORMS"

Country of origin	1928		1929	
	Kilos	Per cent	Kilos	Per cent
United Kingdom.....	310, 286, 134	29.8	320, 955, 870	32.0
Germany.....	279, 279, 126	26.8	253, 451, 334	25.3
Belgium.....	223, 078, 151	21.5	228, 649, 720	22.8
France.....	126, 108, 915	12.1	104, 373, 720	10.4
United States.....	62, 439, 967	6.0	64, 639, 783	6.5
All other countries.....	39, 954, 036	3.8	36, 194, 780	3.0
Total.....	1, 041, 146, 329	100.0	1, 008, 265, 207	100.0

Manufacturers in the United Kingdom lead in supplying Argentina with pig iron, steel bars, plates and flats, rails, galvanized iron sheets, railway fishplates and couplings, cast-iron pipe over 75 millimeters in diameter, nails, and bolts, nuts, and screws. The Argentine import trade with Germany is most important in iron bars and plates, beams, iron and steel wire up to No. 14 gage in size, both galvanized and ungalvanized, and wrought and galvanized iron pipe. Belgian firms lead in the provision of straps and hoops, shapes (L, T, U, Z, and others), and are factors of importance in meeting the demand for pig iron, rails, bars and plates, beams, and many other items. Firms in France lead in supplying cast-iron pipe up to 75 millimeters in diameter and are important in supplying the demand for pig iron, rails, bars and plates, sheets, shapes, and beams. Manufacturers in the United States are in the leading position so far as the sales of iron and steel barbed wire for fences are concerned, and they take care of the greatest demand for columns, frames, trusses, etc., galvanized-iron sheets, iron and steel wire up to No. 14 gage, galvanized and ungalvanized, wrought and galvanized iron pipe, and screws, bolts, and nuts.

## INDIVIDUAL IRON AND STEEL PRODUCTS

## PIG IRON

For many years, owing to the increasing demand for pig iron on the part of the foundries and other metal-working establishments, pig-iron imports have been constantly on the upgrade. Statistics concerning shipments of such material into the country indicate that the total during 1930 was about 30,000 tons, as against 27,000 and 26,000 tons entered during 1929 and 1928, respectively. The latest detailed import statistics are as follows:

## ARGENTINE IMPORTS OF PIG IRON FOR FOUNDRING

(In kilos)

Country of origin	1928	1929	1930 <sup>1</sup>
United Kingdom.....	5,251,952	11,959,526	(?)
Belgium.....	7,706,755	6,243,215	(?)
Germany.....	1,934,570	5,046,282	(?)
France.....	3,547,537	2,176,145	(?)
British possessions.....	6,068,933	1,240,329	(?)
Luxemburg.....	1,183,320	264,000	(?)
All other countries.....	159,800	10,822	(?)
<b>Total.....</b>	<b>25,852,887</b>	<b>26,940,819</b>	<b>28,813,358</b>

<sup>1</sup> First 9 months only.<sup>2</sup> Not yet available by countries.

The Argentine customs tariff valuations for duty purposes, on imports received during 1928 and 1929, amounted to 744,563 and 776,069 gold pesos, respectively. The United Kingdom, Belgium, and France were in the past the principal sources of the pig iron used in this country. During the last few years, however, German manufacturers have increased their sales at a good rate. Imports from the United States have never been of great size but lately have dropped to virtually nothing. For a number of years efforts were made by the local office of one of the large American producers to sell American pig iron locally, but the results obtained were practically negligible.

In connection with a consideration of local market characteristics as applying to pig iron it may be interesting to note the following data giving analyses of two of the principal types of pig iron now being imported into Argentina:

"Hematite"—From Germany and the United Kingdom:

Silicon.....	Per cent 2.5 approximately.
Sulphur.....	.02 maximum.
Phosphorus.....	.05 maximum.
Manganese.....	.5 approximately.

Lux No. 1—From Luxemburg:

Silicon.....	3.0 to 3.5.
Sulphur.....	.02 to 0.03.
Phosphorus.....	1.8 approximately.
Manganese.....	.4 to 0.6.

Recent (May, 1931) prices on these varieties of pig iron were about £5 4s. (approximately \$25.22 in United States currency), and £4 15s. (approximately \$23.20 in United States currency) per metric ton c. i. f. Buenos Aires.

In a recent call for bids by one of the Government departments for the supplying of 350 metric tons of pig iron, five firms, representing European producers, bid respectively as follows: 62.40, 59.70, 59.25, 72.40, and 85 paper pesos per metric ton c. i. f. Buenos Aires. At the time the bids were submitted the par value of the paper peso was equal to about \$0.36 in United States currency.

#### SCRAP

Imports of scrap iron and steel into Argentina are not very extensive, having dropped from 2,499 tons in 1928 to 1,264 tons in 1929. Figures for 1930 are not yet available, but in view of the prohibition existing at this time (June, 1931) against the exportation of scrap from Argentina it does not seem likely that any increase over the 1929 trade could have taken place.

In former years large quantities of scrap iron and steel were shipped out of Argentina to other countries, and although it was recognized that such shipments constituted in a way an economic loss to the country, it was not until at the end of 1929 that a decree prohibited its exportation. Exports during 1928 and 1929 had amounted to 41,290 and 96,991 metric tons valued at 84,952 and 493,328 gold pesos, respectively. Shortly after the decree was promulgated an interesting editorial appeared in the important Buenos Aires newspaper *La Nacion*, which read in part as follows:

According to rough estimates, this country has in its hands about 80,000 tons every year of scrap iron and steel which comes for the most part from the renewals of material carried out in the railway workshops, together with a small output from repair shops and agricultural machinery. This figure must necessarily increase as time goes on not alone through the material growth of the country, which multiplies its consumption and as a consequence the amount of the residue, but principally through the increasing percentage of renewals of railway stocks. It should be borne in mind that the railways owe their considerable expansion of late years to the protection afforded by the Mitre law, under which some 13,000 kilometers of new lines were laid down within a 5-year period. Taking 30 years as the average life of a rail on straight track, and 15 years for rails on curves, crossings and at shunting yards, it seems logical to suppose that within a few years more the first named will need renewing almost in their totality, which will mean a sudden and large increase of our old steel stocks to over one-third more than the present quantities.

This may seem a small matter, but in reality it constitutes a fundamental source of riches to a country like Argentina, which may be said to have no iron through private enterprise not working the mines of the country. Upon this basis of residue material alone, we can build up a metal-working industry within the country, which is a highly desirable achievement both from an economic and a safeguarding point of view.

#### STEEL BARS, PLATES, AND FLATS

The Argentine consumption of steel in the form of bars, plates, and flats has increased greatly from year to year, imports of such materials having almost doubled since 1925. Although the majority of commodities of all kinds have been imported in much smaller amounts during the better part of last year and the beginning of 1931, as compared with immediately previous years, entries of steel bars, plates, and flats have been continually on the upgrade. Argentine imports of special steel bars, plates, and flats amount to about 18,000 tons per year, of which the large percentage is brought in from the

United Kingdom, American participation being almost negligible in amount. Detailed figures on imports are as follows:

ARGENTINE IMPORTS OF SPECIAL STEEL BARS, PLATES, AND FLATS

[In kilos]

Country of origin	1928	1929	1930 <sup>1</sup>
United Kingdom.....	8,766,965	13,027,891	(?)
Germany.....	2,636,413	3,340,791	(?)
France.....	830,669	1,000,234	(?)
Belgium.....	228,401	569,522	(?)
Austria.....	734,432	342,110	(?)
United States.....	50,109	75,833	(?)
Sweden.....	48,932	27,651	(?)
All other countries.....	18,330	31,421	(?)
Total.....	13,314,251	18,415,453	16,458,441

<sup>1</sup> First 9 months only.

<sup>2</sup> Not yet available by countries.

An explanation of the growth in the import trade in special steel in these forms is found in the local development, during recent years, of new manufacturing industries. In addition, during the past months of economic depression, large amounts of steel in the smaller sizes of bars and plates have gone into the repair of plant equipment, which under more normal conditions might be replaced by new. Among the large users of these steels are the railway machine shops, some of which are equipped to do all kinds of locomotive and car-repair work and are also capable of making practically any part used in the assembly of such rolling stock. Tramway companies also constitute a source of demand as do the agricultural implement manufacturers, machine shops, automobile assembly and repair plants, the manufacturers of office furniture, of tools, of screws, of bolts and nuts, of chains, and of numerous other articles.

Other important users of special steel of this kind are the local manufacturers of automobile replacement springs and bumpers. Some idea of the yearly demand for these last replacement parts may be obtained from the estimates of automotive vehicles in circulation—estimates which show that there were, as of January 1, 1931, approximately 295,000 passenger cars, 69,000 trucks, and 2,800 busses in the country. Replacement springs and bumpers for use in these vehicles are, to the extent of about 80 per cent of the demand, of local manufacture. The Argentine branch of a large American exporting house makes probably 75 per cent of the total domestic production, while a number of small local firms produce the balance. It is expected that the market for imported products of this kind will continue to decline in the future and come more to be supplied by domestic manufacturers. As a result there should continue to be a good demand for the special steels used in the making of such articles.

Vehicles are assembled in Argentina by two branch plants of American manufacturers and five Argentine distributors of cars and trucks—all of these establishments having extensive shops wherein a considerable amount of manufacture of parts can be and is to some



extent done. In one of the plants a fair stock is always kept of various classes of bar, hexagon, round and flat tool, alloy, high speed, and other types of special steel, and many jobs are executed in this plant as a result of the firms' automotive distribution activities. Automobile repair shops are quite numerous throughout the country; in Buenos Aires there are said to be about 350, many of which, however, are small.

A rough estimate of the number of machine shops in Argentina has been placed at about 1,400. It is not known, naturally, what the total consumption of special bar, plate, and flat-steel stock amounts to in all of these establishments, but it is not unreasonable to consider it as being quite large. Hundreds of articles of all kinds are made in these shops, such as agricultural implements and repair parts, chains, tools, buggy, wagon, automobile and other axles, springs, bumpers, bolts and nuts, repair parts for all kinds of mechanical equipment, etc.

The strong position of the British manufacturers in the Argentine trade in these special steel bars, plates, and flats results chiefly from the large proportion of the total Argentine demand for such products coming from the British-owned railways operating in the country. German and other European manufacturers supply large quantities of such products for use here, mainly because of their ability to quote much lower prices than American producers. In the demand for tool steels, for instance, it is said (there being no official statistics to back up the statement, however) that practically 75 per cent of the demand for such steels is supplied by the German manufacturers, among which Boker y Cia., Boehler Hnos y Cia., and Reochling Buderus S. A. (as the local distributing organizations are known) are the most important. The first mentioned appears to have the strongest position in the market, and it is extremely difficult for American firms to obtain any business in supplying such steels—the exception being in the case of some very special types. The two principal reasons for the success of the German firms in the tool-steel market in Argentina are given to be: First, their prices, which are very low, and secondly, the maintenance by their local distributing organizations of very complete stocks of all of the sizes, shapes, and types of steel for which there is likely to be any demand at all. Of those steels in large current demand, very extensive stocks are carried at all times.

#### SHEETS AND PLATES

Annual Argentine imports of iron and steel sheets and plates have reached over 151,000 tons in recent years. The uses in this country for such flat material are, naturally, multitudinous, but the bulk of the imports are made up of black sheets destined for conversion, by the three local galvanizing and corrugating plants, into corrugated galvanized sheets for roofing. As the domestic manufacture of corrugated sheets amounts to about 100,000 tons per year, imports of black sheets for this purpose must be of approximately that amount, leaving the remainder of the imports to be divided among heavier sheets and plates which are used in the fabrication of shapes for structural purposes; in the manufacture of office furniture and safes; and

in the construction and repair of fireboxes, boilers, tanks, etc. Statistics on imports of sheets and plates since 1928 are as follows:

ARGENTINE IMPORTS OF SHEETS AND PLATES

[In kilos]

Country of origin	1928	1929	1930 <sup>1</sup>
United Kingdom.....	113, 586, 690	107, 378, 675	( <sup>1</sup> )
Belgium.....	17, 637, 886	18, 869, 810	( <sup>2</sup> )
Germany.....	12, 490, 218	12, 393, 032	( <sup>2</sup> )
United States.....	1, 997, 826	7, 662, 747	( <sup>2</sup> )
France.....	4, 427, 201	3, 782, 899	( <sup>2</sup> )
Luxemburg.....	62, 420	993, 822	( <sup>2</sup> )
All other countries.....	643, 315	92, 295	( <sup>2</sup> )
Total.....	150, 845, 556	151, 173, 280	88, 122, 288

<sup>1</sup> First 9 months only.

<sup>2</sup> Not yet available by countries.

Considerable quantities of corrugated black sheets are imported and used as roofing without protection of any kind, chiefly in the southern part of Argentina where climatic conditions are such that galvanized sheets do not have to be used. Black corrugated sheets are also used in other parts of the country, such sheets being protected against the elements by covering with asphalt or other protective paint. Some sheets are also imported already coated with protective paint, but there is no way of determining the quantity of such material brought into the country in a year. Considerable quantities of sheets are also imported to be worked up locally into metal ceilings and siding. There are several concerns engaged in this phase of the stamping business.

Another important source of demand for sheets and plates of the lighter sizes is provided by the Argentine stove-manufacturing industry. In Buenos Aires, wherein is concentrated most of the activity, there are said to be about 80 to 100 firms manufacturing stoves. Most of these firms, however, are small but figure in the aggregate as consumers of large quantities of sheets and plates. Sheets of higher gages are also used to a considerable extent in the manufacture of metal window blinds and in the production of corrugated metal shutters for store fronts. It is the universal custom in the cities of Argentina for the stores of the better class to use shutters of this type, and several factories in Buenos Aires devote themselves to this class of work, importing the flat sheets and corrugating and assembling them in their plants. Galvanized flat sheets are also used for work of this kind.

Mention should be made of the local manufacture of steel office furniture, lockers, etc., which has grown to such an extent during the past few years as seriously to affect the importation and sale of American office furniture of this kind. There are several concerns engaged in this line of work, but the principal one is Establecimientos Klockner, S. A. This firm also has cut seriously into the import trade in metal door and window frames through its production of these items.

About 70 per cent of the sheets are supplied by manufacturers in the United Kingdom—a circumstance which in large measure results because of the fact that British capital is involved in two of the local

plants manufacturing corrugated galvanized sheets, namely, the Anglo Argentine Iron Co. and John Lysaght (Ltda.). Both of these firms display a distinct preference for the British sheets. The growth in this local manufacture during the past few years has been a very important factor in maintaining the imports of black sheets at a high level.

Figures on exports of black sheets, under one-eighth inch in thickness, from the United Kingdom to Argentina in recent years are: 1925, 33,750 gross tons valued at £447,227; 1926, 61,666 tons valued at £755,274; 1927, 81,427 tons valued at £1,017,684; 1928, 103,296 tons valued at £1,148,330; 1929, 108,408 tons, value not yet available.

The British do not supply very large quantities of sheets and plates heavier than one-eighth inch in thickness to this market. In 1929, the latest year for which complete figures are available, shipments of these heavier sheets and plates from the United Kingdom to Argentina totaled 3,387 gross tons, having dropped from the 4,100-ton total of 1928. The trade in 1927 amounted to 3,653 tons, having risen sharply from the 2,566 tons imported in 1926.

The British trade with Argentina in plates and sheets, therefore, judging from the figures above quoted, is almost entirely based upon the demand for such material from the local galvanizing establishments. Outside of the sheets used by these plants, most of the sheets and the heavier gage material in the form of plates are supplied by European manufacturers, chiefly those of Belgium and Germany, whose prices are so low as to permit of virtually no competition from other manufacturers. Current prices (May, 1931) on black sheets vary from 6.30 gold pesos per hundred kilos for sheets of No. 12 gage, to 8.80 gold pesos for No. 26 gage sheets. These prices naturally are subject to discounts for quantity purchases.

#### GALVANIZED SHEETS

It would be a difficult task to enumerate the many applications of and uses for galvanized sheets in Argentina. In the rural districts enormous quantities of corrugated galvanized sheets are used in the roofing and siding of buildings, not only of the warehouse, storage shed, and barn types, but of the small, inexpensive dwellings as well. Even in the suburbs of the larger cities, such as Buenos Aires, Rosario, La Plata, etc., hundreds of buildings utilize corrugated iron sheets in some way or other. In the interior sections, large quantities of corrugated galvanized iron are also used in other phases concerned with the protection of the physical assets of the people. The comparatively high cost of lumber in sections far removed from the sources of supply provides another advantage in and reason for the widespread employment of corrugated iron sheets.

Argentina also utilizes large quantities of flat galvanized sheet iron and steel of various gages in the manufacture of tubs, drains, buckets, and other similar containers, small water tanks, building cornices, in the construction of air ducts, and for many other purposes.

Recent years have witnessed a gradual decline in imports of galvanized sheets, both flat and corrugate, so that, whereas in 1925 over 83,000 tons of such material were brought in, this figure dropped to 47,000 and 28,000 tons, respectively, during the next two succeeding years. During 1928 and 1929 shipments to Argentina continued to decline, amounting to only 27,500 and 23,600 tons, respectively.

The decrease in imports in 1930 was also very pronounced and was probably abnormal, due to the combination of unfavorable business and political conditions existing in the country. The relative decline in imports must not be taken to indicate corresponding drops in consumption of such products, as during the past few years the local manufacture of corrugated galvanized sheets has proceeded apace.

The Argentine import statistics list about 15 countries as supplying galvanized sheets for use in the country. Only about half of these are of sufficient importance to warrant consideration as offering competition for the sale of American sheets, however. Imports during recent years from these countries have been as follows:

#### ARGENTINE IMPORTS OF GALVANIZED SHEETS

{In kilos}

Country of origin	1928	1929	1930 <sup>1</sup>
United Kingdom.....	8,916,419	7,464,509	( <sup>2</sup> )
Germany.....	6,518,267	7,222,281	( <sup>2</sup> )
United States.....	7,734,074	5,884,654	( <sup>2</sup> )
Belgium.....	3,651,977	2,444,301	( <sup>2</sup> )
France.....	607,419	388,363	( <sup>2</sup> )
Luxemburg.....		142,134	( <sup>2</sup> )
All other countries.....	120,556	62,139	( <sup>2</sup> )
Total.....	27,548,712	23,608,381	10,124,816

<sup>1</sup> First 9 months only.

<sup>2</sup> Not yet available by countries.

About 93 per cent of the imports referred to consist of flat sheets, the remainder being made up almost entirely of corrugated galvanized sheets of special types, corrugation, or gages, which must of necessity be imported because local plants do not manufacture these classes of material. In Argentina thousands of railway freight cars are roofed over with heavy gage corrugated sheets, and large quantities of such sheets are used every year. Material imported for use by the railways is permitted to enter the country duty free, so that sheets imported in this way do not show a very appreciable difference in cost, as compared with locally made corrugated sheets. Because of this fact and since British capital is heavily invested in the principal Argentine railways, British manufacturers of these special corrugated galvanized sheets are able to ship several thousand tons of such sheets to Argentina each year. The latest figures available follow.

#### UNITED KINGDOM EXPORTS OF GALVANIZED SHEETS TO ARGENTINA

Year and product	Gross tons	Value
1927:		
Galvanized sheets, flat.....	1,178	£23,636
Galvanized sheets, corrugated.....	8,531	152,388
Total, 1927.....	9,709	176,019
1928:		
Galvanized sheets, flat.....	2,297	41,275
Galvanized sheets, corrugated.....	7,235	117,926
Total, 1928.....	9,532	159,201
1929, total <sup>1</sup> .....	8,030	124,358
1930, total <sup>1</sup> .....	6,227	91,289

<sup>1</sup> Information on the respective tonnages of flat and corrugated sheets not available for 1929 and 1930.

The total Argentine consumption of corrugated galvanized sheets has been estimated to be about 100,000 metric tons during a normal year. In 1930, however, consumption was greatly reduced and is calculated to have totaled only about 25,000 tons. The very considerable difference between this local consumption and the tonnage imported is supplied, as has been noted, from local production (galvanizing and corrugating) of imported black sheets.

#### STRAPS AND HOOPS

Although iron and steel straps and hoops form an important part of the imports of iron and steel semimanufactures, Argentine statistics show that imports of such material have varied widely during the past few years, so that while during some years more than 13,000 tons have entered the country, in other years hardly more than 4,000 or 5,000 tons have been imported. This is probably due to the fact that straps and hoops are used in the main for two purposes, namely, in the baling of wool, which is one of the principal products of Argentina, and in the wine industry, where large quantities are used in making barrel hoops. Wide straps are used in making metal window blinds, known here as "persianas."

The principal supplying countries are Belgium and Germany, as is seen from the table below.

#### ARGENTINE IMPORTS OF STRAPS AND HOOPS

[In kilos]

Country of origin	1928	1929	1930 <sup>1</sup>
Belgium.....	3,492,377	4,745,019	( <sup>2</sup> )
United Kingdom.....	1,707,151	3,386,960	( <sup>2</sup> )
Germany.....	3,318,344	3,182,991	( <sup>2</sup> )
France.....	1,256,142	1,214,393	( <sup>2</sup> )
Luxemburg.....	348,360	264,188	( <sup>2</sup> )
Netherlands.....	159,117	168,743	( <sup>2</sup> )
United States.....	54,775	31,310	( <sup>2</sup> )
All other countries.....	26,999	47,598	( <sup>2</sup> )
Total.....	10,363,265	13,041,202	3,139,049

<sup>1</sup> First 9 months only.

<sup>2</sup> Not yet available by countries.

Steel hoops, for wool-baling purposes, are most desired in bundles weighing about 50 pounds and about 9 feet long, but for strapping purposes, or as barrel hoops, they are usually required in coils containing about 110 feet. Recent prices on straps and hoops have been from 7 to 8 gold pesos per 100 kilos.

#### STRUCTURAL MATERIALS

##### BARS AND FLATS

The demand for bars, shapes, beams, and similar steel structural materials in Argentina is very largely dependent upon activity in building construction. Unfortunately, official statistics concerning construction are available only for the city of Buenos Aires. Nevertheless, it is the general opinion that at least up to the beginning of 1930, activity in this regard in the interior, especially in the more progressive centers such as La Plata, Rosario, Cordoba, and Santa Fe tended to increase in the amount of construction done from year to

year. In Buenos Aires construction had proceeded apace until early last year (1930), when a falling off began to be noticeable. During the four years previous, the number of building permits and the sums involved were as follows:

BUILDING PERMIT DATA FOR BUENOS AIRES, 1926-1929

Year	Permits issued	Area covered, in square meters	Value of buildings, in paper pesos
1926.....	16,800	1,694,900	163,999,700
1927.....	19,800	1,888,000	185,858,800
1928.....	20,800	2,265,400	214,724,800
1929.....	22,300	2,831,500	350,473,000

A further basis of comparison is available when it is seen that during 1920, 9,700 permits for construction were issued in Buenos Aires, to cover an area of 1,025,800 square meters, and valued at 82,915,900 paper pesos. In 10 years, therefore, without taking into consideration any fluctuation in building costs, the number of building permits issued has increased by 130 per cent, area covered by 170 per cent, and the amount expended by 334 per cent.

Although statistics are not yet available covering the entire year 1930, data concerning the first 10 months show that 18,679 building permits were granted for construction designed to cover an area of 2,240,290 square meters and costing 231,152,229 paper pesos. The amount expended for the year, therefore, although probably very much less than for 1930, will still show a large increase over the amount of the expenditure during 1928.

Owing to the large proportion of reinforced concrete construction done in Buenos Aires and other large cities in the country, there is a considerable demand for iron reinforcing bars. It is customary also, in local construction, to use much ornamental iron work with a high quality of workmanship. Soft steel bars, wrought iron bars and castings are used in this work.

The origin of imports of bars and flats during 1928 and 1929, is shown in the following table:

ARGENTINE IMPORTS OF BARS AND FLATS

[In kilos]

Country of origin	1928	1929	1930 <sup>1</sup>
Germany.....	77,852,005	66,158,562	(?)
Belgium.....	61,903,314	63,591,989	(?)
France.....	29,030,873	22,547,053	(?)
Luxemburg.....	15,619,751	17,308,521	(?)
United States.....	449,871	1,324,630	(?)
United Kingdom.....	968,657	516,171	(?)
All other countries.....	957,257	1,092,020	(?)
Total.....	186,781,728	172,525,946	108,989,651

<sup>1</sup> First 9 months only.

<sup>2</sup> Not yet available by countries.

Owing to the very low prices quoted on such iron and steel products, by the manufacturers in the first four countries mentioned above, practically all of the iron bars and flats imported into Argentina are brought in from those countries, and only insignificant amounts are introduced from the United States. Recent (prior to May 28, 1931) quotations in Buenos Aires were as follows:

Round and square bars, per 100 kilos:  $\frac{3}{16}$  inch, 5.80 gold pesos;  $\frac{1}{4}$  inch, 5.70 gold pesos;  $\frac{5}{16}$  inch, 5.60 gold pesos;  $\frac{3}{8}$  and  $\frac{7}{16}$  inch, 5.50 gold pesos. On purchases of more than 1,000 kilos., prices are 0.20 gold peso less; on purchases of more than 4,000 kilos, prices are 0.40 gold peso less.

Flats, per 100 kilos:  $\frac{1}{8}$  inch, 6.20 gold pesos;  $\frac{3}{16}$  inch, 5.70 gold pesos;  $\frac{1}{4}$  and  $\frac{5}{16}$  inch, 5.60 gold pesos;  $\frac{3}{8}$  to 1 inch, 5.40 gold pesos. On purchases of more than 1,000 kilos, prices are 0.20 gold peso less; on purchases of more than 4,000 kilos, prices are 0.40 gold peso less.

The sizes mentioned above are those generally most in demand.

#### SHAPES

Beams, angles, channels, tees, and other shapes coming under the heading of structural steel are used in Argentina for the construction of buildings, bridges, and piers as well as for other purposes as in the United States. As indicated under the previous heading, "Bars and Flats," the development of building construction in this country has been of fundamental importance in its effect upon the demand for iron and steel products of this kind. It need hardly be said that the demand for shapes has likewise been dependent in large measure, upon the progress in building, bridge, and pier construction, etc.

During the past three years about 50 per cent of the shapes imported into Argentina have been of Belgian origin, the price factor again being the determining element favoring Belgian manufacturers. The United States has been called upon to supply only a small percentage of the total demand, the material brought in from the United States being mostly made up of special shapes of types different from those in general current demand. The latest import statistics by countries of origin are as follows:

#### ARGENTINE IMPORTS OF SHAPES

(In kilos)

Country of origin	1928	1929	1930 <sup>1</sup>
Belgium.....	49,441,186	53,606,326	(?)
Germany.....	28,612,911	26,788,309	(?)
France.....	15,609,330	13,800,844	(?)
United States.....	307,779	3,742,743	(?)
United Kingdom.....	2,110,703	2,177,849	(?)
Luxemburg.....	1,369,857	967,920	(?)
All other countries.....	401,902	433,631	(?)
Total.....	97,753,668	101,517,632	57,498,111

<sup>1</sup> First 9 months only.

<sup>2</sup> Not yet available by countries.

Current prices on angle T, U, Z, and like forms, vary from about 6.20 to 7.40 gold pesos per 100 kilos.

#### BEAMS

The market factors indicated above as affecting the demand for bars and flats and for shapes are also of prime importance in the demand for beams. Here, also, German and Belgian manufacturers

lead because of the very low prices they are able to quote. The latest available statistics on imports of beams are as follows:

#### ARGENTINE IMPORTS OF BEAMS

[In kilos]

Country of origin	1928	1929	1930 <sup>1</sup>
Germany.....	31,453,090	30,022,508	(?)
Belgium.....	18,158,337	21,821,522	(?)
France.....	18,592,541	20,158,871	(?)
Luxemburg.....	705,402	2,309,938	(?)
United States.....	108,392	1,649,465	(?)
United Kingdom.....	175,845	469,211	(?)
All other countries.....	701,506	408,745	(?)
Total.....	69,895,113	76,840,260	39,178,813

<sup>1</sup> First 9 months only.

<sup>2</sup> Not yet available by countries.

Recent current prices of beams from 80 to 500 millimeters in size have been from 62 to 73 gold pesos per metric ton for beams in lengths as received from the mills. For beams cut to specified lengths prices have been from 63 to 75 gold pesos per metric ton for the sizes mentioned. So-called "gray" iron beams have been selling at 79 gold pesos per ton in original lengths, and at 81 gold pesos per ton when cut to specified lengths. Prices recently are said to have bettered somewhat; that is, European quotations to Argentine purchasers have been slightly lower.

#### COLUMNS, FRAMES, TRUSSES, ETC.

During 1929 and 1930 a decline was noted in the Argentine demand for iron and steel products in these forms. Columns are rather extensively used in the larger cities in supporting street-lighting fixtures, trolley lines, etc. In many buildings, moreover, it is customary to provide inside patios, which are usually surrounded on all sides on the upper floors by balconies supported from the lower floors by columns. These patios oftentimes are roofed over by skylights. A large demand is therefore created for columns, frames, trusses, and the like. However, the tendency of late years appears to be away from this style of construction, especially in large buildings and those of the office type located in the business centers. Columns for lighting fixtures have been in good demand during recent years owing to the spread of better street-lighting facilities.

Imports of such products since the beginning of 1928 have been as follows:

#### ARGENTINE IMPORTS OF COLUMNS, FRAMES, TRUSSES, ETC.

[In kilos]

Country of origin	1928	1929	1930 <sup>1</sup>
United Kingdom.....	12,962,989	11,920,936	(?)
United States.....	3,094,532	4,184,488	(?)
Germany.....	2,411,824	1,686,610	(?)
Belgium.....	2,693,601	1,365,561	(?)
Netherlands.....	118,183	882,879	(?)
France.....	50,787	590,267	(?)
All other countries.....	228,811	14,334	(?)
Total.....	21,560,727	20,645,075	12,911,928

<sup>1</sup> First 9 months only.

<sup>2</sup> Not yet available by countries.



Several small firms are listed in local directories as manufacturers of columns, but they are reported to be of such small importance as hardly to merit attention.

#### METAL LATH

The bulk of the Argentine trade in metal lath is handled by American manufacturers. Owing to the absence of official statistics concerning imports of this class of product it is impossible to give an accurate figure concerning either the total demand or the percentage supplied by American firms. However, American participation has been estimated between 70 and 80 per cent. A means of estimating the extent of the demand is offered by statistics compiled by *El Constructor*, an Argentine magazine devoted to construction topics, according to which there were imported through the port of Buenos Aires (through which port enter practically all shipments of metal lath) 27,932 bundles of metal laths—a figure which may be interpreted by firms familiar with the preparation of metal lath shipments.

United States exports of metal lath to Argentina—another basis for estimating the extent of this market—over the past few years have been as follows:

#### UNITED STATES EXPORTS OF METAL LATH TO ARGENTINA

Year	Pounds	Value	Year	Pounds	Value
1927.....	3, 771, 080	\$279, 895	1929.....	4, 542, 587	\$291, 152
1928.....	5, 542, 895	352, 594	1930.....	4, 083, 537	338, 313

The progress of building construction has naturally had a direct effect upon the imports of metal lath, so that the heavy exports from the United States to Argentina during 1928 and 1929 may be explained by a consideration of the large number of building permits issued by the city of Buenos Aires during the two years in question. During 1931 construction has fallen off, according to firms in the building-material trade. The prevalence of reinforced concrete construction for the great majority of buildings in the large cities is of great importance in creating a demand for expanded metal products, special forms of metal lath and wire, and deformed bars such as are used in reinforcing concrete.

#### RAILWAY-TRACK MATERIAL

##### STEEL RAILS

During 1928 and 1929 imports of steel rails formed a considerable portion of total imports of iron and steel products and exceeded the quantities brought in during earlier years by a large margin. Railway-line construction and repair of existing lines were undertaken on a large scale during the two years in question, both by the private railway companies and by the State railway organization; thousands of tons of rails were required therein. The total imports of rails during 1930 as indicated by preliminary figures of receipts during the first nine months of the year and by estimates of firms in the trade are expected to be less than those during 1929 by about 25 per cent, and

it is held probable that a further decline will be experienced during 1931, owing to the curtailment of other than absolutely necessary construction of railway lines by the State railways and by the private companies.

The most recent import statistics available are as follows:

ARGENTINE IMPORTS OF STEEL RAILS

[In kilos]

Country of origin	1928	1929	1930 <sup>1</sup>
United Kingdom.....	111, 970, 329	108, 121, 537	(9)
Belgium.....	22, 988, 231	20, 110, 556	(9)
France.....	26, 946, 781	18, 902, 139	(9)
Germany.....	23, 749, 747	13, 948, 694	(9)
United States.....	4, 003, 324	4, 472, 388	(9)
Netherlands.....	19, 980	1, 094, 683	(9)
Luxemburg.....	2, 944, 966	61, 263	(9)
Czechoslovakia.....		22, 719	(9)
Other countries.....	22, 719		(9)
Total.....	192, 646, 077	166, 733, 979	109, 223, 945

<sup>1</sup> First 9 months only.

<sup>2</sup> Not yet available by countries.

A recent estimate of the railway mileage in Argentina, from the publication Business Conditions in Argentina, for January, 1931, shows that the total length of railways in operation on December 31, 1930, was about 39,570 kilometers (approximately 24,570 miles). Estimates of railways in operation at the end of 1929 and 1928 were 38,378 and 38,164 kilometers (23,830 and 23,700 miles), respectively. In addition to the main railway companies there are several firms operating industrial railways, but as these have not been active in the extension of their lines they are of small importance in the demand for rails.

The principal private railway lines are operated by British capital, and as the British firms recommend the purchase of equipment and supplies to their home offices in London, rails for use on these lines are almost always imported from the United Kingdom. This situation also exists in the case of the Compañía Anglo-Argentina de Tranvías, the principal street-railway company in Buenos Aires, as well as with the other British-owned tramway companies in other cities, and it serves to explain, in part at least, why over 60 per cent of the tonnage of steel rails imported into Argentina is brought in from the United Kingdom. The importance of German, Belgian, and French firms is explained by the fact that some continental European capital is tied up in some of the smaller Argentine private railways. German and Belgian rails, moreover, have, especially during the past few years, been offered at lower prices than the rails of other manufacturers; for this reason important sales have been made to the State railway and other organizations whose orders are placed mainly on the basis of price. In the smaller sizes of rails, Belgian firms have even more advantage as regards price, as many of the large rail manufacturers do not roll rails of the higher types.

Various firms from time to time have endeavored to sell used rails to Argentine companies, but with comparatively little success. During 1925, 1926, and 1927, shipments of used rails into Argentina amounted to 34,609, 15,890, and 6,182 kilos, respectively. All material for the use of railways operating in Argentina is allowed to enter the country free of duty.

There is a very wide variety of sizes of rails in use in Argentine railway systems, such as 30, 47.5, 48.9, 55, 60, 66, 68.2, 70, 74, 77, 80, 85, 100 pounds per yard, and others. Also there are several industrial lines using rails of less than 30 pounds per yard. The principal lines, such as the Central Argentine Railroad (Ferrocarril Central Argentina) and Buenos Aires Great Southern Railway (Ferrocarril Sud) use heavier rails on their main lines, such as 80, 85, and 100 pounds per yard. There is also variation in the length of rails used, although rails of 10 and 12 meters are in largest proportion. The State railways use rails from 20 to 80 pounds per yard, usually of 8, 10, and 12 meters in length.

Official import statistics fail to show the distribution of rail imports by classes and sizes of rail, but some idea of this division may be obtained from the statistics below, which show United Kingdom exports to Argentina, notwithstanding that the data refer only to 1926, 1927, and 1928.

#### UNITED KINGDOM EXPORTS OF RAILS TO ARGENTINA

[In gross tons]

Item	1926		1927		1928	
	Tons	Value	Tons	Value	Tons	Value
Steel rails grooved for tramways.....	201	£14,740	274	£18,256	57	£4,405
Rails weighing over 30 pounds per yard.....	40,416	334,286	87,673	708,738	109,634	940,662
Rails weighing 30 pounds per yard and less....	747	6,446	134	2,026	14,226	112,456

According to United Kingdom statistics, exports to Argentina of steel rails during 1929 and 1930 amounted to 108,828 and 97,842 tons, valued at £907,977 and £844,014, respectively, and of other railway rails 7,701 and 7,015 tons valued at £190,611 and £211,599, respectively.

Statistics concerning shipments from the United States to Argentina show that during 1928 and 1929 there were exported 4,265 and 3,068 tons of rails weighing 50 pounds and over per yard, valued at \$168,249 and \$138,590, respectively, and 35 and 1,122 tons of rails weighing less than 50 pounds per yard, valued at \$3,459 and \$44,025, respectively.

The foregoing figures also serve to show that during the last few years, the tendency has been toward the purchase of the heavier types of rails for use on Argentine railway systems.

## RAILWAY FISHPLATES AND OTHER TRACK MATERIALS

The demand for these products is so closely tied in with the demand for rails that the comments on market factors affecting the sale of rails under the previous heading apply in general to the materials under consideration here. Recent imports of railway fishplates have been as shown in the table below.

## ARGENTINE IMPORTS OF RAILWAY FISHPLATES

[In kilos]

Country of origin	1928	1929	1930 <sup>1</sup>
United Kingdom.....	9,952,383	6,736,305	(?)
Belgium.....	4,261,984	3,427,047	(?)
France.....	2,004,710	614,105	(?)
United States.....	217,036	238,154	(?)
Germany.....	750,683	237,499	(?)
Netherlands.....	521	120,169	(?)
Luxemburg.....	1,186	1,736	(?)
All other countries.....	210,028	313,391	(?)
Total.....	17,398,531	11,688,406	6,983,801

<sup>1</sup> First 9 months only.<sup>2</sup> Not yet available by countries.

The trade in products of this kind is almost entirely controlled by European manufacturers, and firms in the United States are able to enter only when special material is called for such as that for use in switch yards, and in those cases American rails are mostly used. In general main-line work European fishplates and other railway material of this kind is utilized.

A good volume of trade is done with British firms in railway spikes and during 1926, 1927, and 1928 (the latest for which data are available), the United Kingdom exports of materials of this kind to Argentina amounted to 2,040, 2,607, and 5,012 tons, valued at £30,231, £40,933, and £74,593, respectively. The United Kingdom statistics also contain a classification for railway sleepers and fishplates from which it is noted that exports of such material during the three years aforementioned amounted in total weight to 5,101, 8,438, and 10,108 tons, and in value to £58,141, £97,822, and £115,013, respectively. These figures, however, do not represent present conditions, since during the years in question and the months immediately following, there was, as has been noted, considerable construction of new lines and repair of existing right of way. Imports of fishplates, spikes, railway bolts and nuts, etc., during 1930 and the first few months of the present year have been very seriously curtailed owing to the inactivity in line construction, and the unfavorable prospects for a resumption of such activities on a large scale in the near future.

## PIPE AND TUBES

Argentine imports of pipe of various classes during 1929 amounted to almost 100,000 metric tons in weight, the kinds of pipe brought in in largest amount being cast-iron pipe, wrought pipe, and galvanized pipe. Quantities imported in 1928 and 1929 of these classes, and of two others of much less importance, are shown on following page.

## ARGENTINE IMPORTS OF PIPE

[In kilos]

Items	1928	1929	1930 <sup>1</sup>
Cast-iron pipe up to 75 millimeters in diameter.....	4, 553, 564	5, 835, 444	(?)
Cast-iron pipe over 75 millimeters in diameter.....	23, 213, 696	33, 930, 425	(?)
Wrought pipe.....	30, 082, 875	29, 016, 125	(?)
Galvanized pipe.....	22, 672, 125	29, 375, 799	(?)
Pipe, brass or bronzed lined.....	133, 868	180, 636	(?)
Unclassified pipe.....	771, 357	1, 093, 802	(?)
Total.....	81, 427, 485	99, 402, 231	50, 852, 851

<sup>1</sup> First 9 months only.<sup>2</sup> Not yet available by items.

On the basis of the statistics by country of origin for the two years referred to above, Germany has supplied about 33 per cent of the pipe imported, followed by the United Kingdom, France, the United States, and Belgium with about 30, 16, 14, and 3 per cent, respectively. Data at present available on entries of the first four kinds of pipe listed above, which make up (in weight) over 95 per cent of total pipe imports, show that during the first nine months of 1930 only 50,852,851 kilos of such varieties of pipe were imported. The decline in imports was greatest in the case of cast-iron pipe over 75 millimeters in diameter, galvanized pipe, and wrought pipe, in that order, whereas in the case of cast-iron pipe up to 75 millimeters in diameter, the entries during the nine months period only, exceed the total imports for the year 1929. No unusual variation was observable during 1931 in the relative importance of the various supplying countries.

## CAST-IRON PIPE

The sources of the demand for cast-iron pipe include the State and private oil-producing organizations, the National Sanitary Works, manufacturers of iron beds, for use in domestic water circulating and heating systems, in gas-supply systems, in water lines on farms, and the like.

The Obras Sanitarias de la Nación, or National Sanitary Works, is a Government bureau in charge of the design and operation of water-works and sewage-disposal systems for the entire Republic. Other organizations operate sewage and water-works systems in Argentina, but they are of much less importance. The Province of Buenos Aires operates a plant in the city of La Plata, the Province of Entre Rios controls plants in Victoria, Gualeguay, and Gualeguaychu, and there are other organizations operating in other cities such as Rosario, Avellaneda, San Fernando, Concordia, and San Lorenzo, the systems of which are not controlled by the National Sanitary Works. The work that has been in progress in Buenos Aires during the past few years in extending the water-supply system of the city has been designed for the year 1970 when the population, it is estimated, will have become 6,000,000, consuming 2,000,000 cubic meters of water daily. The total cost of the works necessary to this project is expected to be in the vicinity of 2,000,000,000 paper pesos.

The purchases of the National Sanitary Works are made on a large scale, and all such purchases and contracts are let on the basis of public tender. The specifications for such tenders are carefully drawn by the engineering and technical offices, and the principle of competitive prices is very important. It is possible for the National Sanitary Works to obtain the best prices for any particular article due to the size of the purchases, since they can combine into one contract the water pipe, soil pipe, valves, pumps, etc., destined for several works in as many different cities. Contracts let for construction of pipe lines usually also require the contractor to supply such materials as can be obtained locally as concrete, brick, and stone, as well as to erect whatever masonry and make whatever fills, etc., as may be required. These same contracts include the erection or placing of the pipe, which is bought directly by the National Sanitary Works and supplied to the contractor. In connection with the pipe used by this department, certain basic specifications have been established which must be adhered to before a brand of pipe will be approved. Manufacturers not obtaining the approval of the products they manufacture may not sell them to the National Sanitary Works; nor may they be used in the cities and towns where the National Sanitary Works exercise supervision over installations.

The constant extension of sewage-disposal systems in the more important cities of the country and the growth in building construction has had an important bearing upon the demand for cast-iron pipe, and, at least up to the end of 1929, imports as well as local manufactures increased at a high rate.

In the smaller types of cast-iron pipe, shipments entering the country since 1928 were as follows:

ARGENTINE IMPORTS OF CAST-IRON PIPE UP TO 75 MILLIMETERS IN DIAMETER

[In kilos]

Country of origin	1928	1929	1930 <sup>1</sup>
France.....	2,590,666	3,048,379	(9)
United Kingdom.....	898,760	2,084,111	(9)
Germany.....	98,193	463,051	(9)
Belgium.....	527,687	201,833	(9)
United States.....	359,485	36,901	(9)
All other countries.....	78,773	1,169	(9)
Total.....	4,553,564	5,835,444	6,554,369

<sup>1</sup> First 9 months only.

<sup>2</sup> Not yet available by countries.

American participation in the cast iron pipe trade is very small, and in regard to the types of pipe used in sanitary installations in buildings is negligible because firms in the United States are said not to have been disposed to supply the kinds of pipe in the small diameters mainly used, namely, soil pipe of 2½ and 4 inches in diameter, according to the specifications laid down by the National Sanitary Works. The registry of approbation, moreover, shows that but very few American brands of cast-iron pipe in these sizes have been approved. The soil pipe of 2½ inches in diameter generally comes in 2-yard lengths, not including the length of the bell. Two principal weights are sold in the market—the one which has been approved weighing

17 kilos minimum per length, which sells (May, 1931) at about £141 13s. 3d. c. i. f. Buenos Aires per thousand lengths, and the other, as yet unapproved, of so-called light construction, weighing 13 to 14 kilos minimum per length and selling at about £117 3s. per thousand lengths. These prices, naturally, are subject to considerable variation, depending upon market conditions, but may be considered representative. A discount of 2½ per cent is allowed on the foregoing quotations for payment cash against documents.

In the local cast-iron import trade, two firms are by far the best known, namely, Walter MacFarlane & Co., of Glasgow, Scotland, and Fonderies de Pont-a-Mousson, of France. In addition there are other firms in the United Kingdom such as David King & Sons and Cockburn & Co.

#### CAST-IRON PIPE OVER 75 MILLIMETERS IN DIAMETER

The general remarks made above in connection with cast-iron pipe of small diameter also apply in the case of pipe over 75 millimeters in diameter, most of the imports of which, as may be seen from the figures below, originate in France and the United Kingdom.

#### ARGENTINE IMPORTS OF CAST-IRON PIPE OVER 75 MILLIMETERS IN DIAMETER

[In kilos]

Country of origin	1928	1929	1930 <sup>1</sup>
United Kingdom.....	8, 172, 851	22, 781, 579	(?)
France.....	11, 103, 109	9, 224, 883	(?)
Germany.....	1, 535, 444	895, 558	(?)
Belgium.....	590, 480	705, 093	(?)
United States.....	1, 450, 712	221, 648	(?)
All other countries.....	120, 100	102, 084	(?)
Total.....	23, 213, 696	33, 930, 425	10, 853, 780

<sup>1</sup> First 9 months only.

<sup>2</sup> Not yet available by countries.

Large quantities of cast-iron pipe in the 4-inch-diameter size are used in sanitary construction. About 90 per cent of the imports are of French and British manufacture, the most active firms being those also selling pipe in sizes up to 75 millimeters in diameter. Two types of 4-inch, cast-iron soil pipe are best known, namely, the "approved," weighing 27 kilos per length, and the "light" type of 21 to 22 kilos per length. Sections of this 4-inch pipe are offered in 2-yard lengths, not including the length of the joint. The first weight is sold at £255 7s. 3d., and the second at £217 10s. 3d. per thousand lengths c. i. f. Buenos Aires. A discount of 2½ per cent is allowed for payment cash against documents.

Perhaps the major portion of the imports, according to the preceding table, has consisted of large-diameter water mains and pipe for branches as used by the National Sanitary Works in extension of water lines. The French firm, Foundries de Pont-a-Mousson, has been more active in the sale of pressure pipe of this kind than in the smaller classes such as referred to previously. American manufacturers have made some sales of cast-iron pressure pipe and fittings, and small orders continue to be placed in the United States from time to time. These sales, however, are not to be compared with those made by European firms.

Judging by the operations of the National Sanitary Works up to the beginning of 1930, it would appear that under normal conditions the demand for cast-iron pipe of all kinds should increase from year to year, as there are numerous cities and towns not yet possessing adequate water supply and sewage systems. Extensions of and replacements for existing installations, moreover, offer another source of what would appear to be a growing demand.

#### WROUGHT PIPE

Among the organizations requiring large amounts of wrought pipe each year may be mentioned the National Sanitary Works, referred to above, the Federal and other petroleum producing companies, several gas companies, firms making central-heating installations, power-station operating concerns, and many others.

The production of petroleum in Argentina is carried on by seven principal companies, the most important of which, Yacimientos Petroliferos Fiscales, is operated by the Federal Government. In addition there are a few other much smaller concerns. Wells in three regions of the country, at Comodoro Rivadavia, Plaza Huincul, and Salta, are being exploited, the total production of petroleum during the last year having been 1,416,498 cubic meters, of which 81.5 per cent was obtained from Comodoro Rivadavia. The production of the Yacimientos Petroliferos in the three fields amounted to 827,900 cubic meters, or 58.8 per cent of the total. There are no long pipe lines, although several have been projected and bids called for on the supplying of the necessary pipe. Numerous short pipe lines are in use in the fields, however, but only for primary distribution of petroleum from the wells to tanks, etc.

Much wrought pipe is used in boilers, steam lines, etc. According to an estimate recently made by the representative in Buenos Aires of an important manufacturer of boilers, there are in Argentina about 7,000 steam users, that is, firms, factories, power plants, etc., making use of steam and, therefore, operating boilers. Hence, boiler tubes are in large demand each year for making repairs, in the construction of new boilers, in the repair and extension of steam lines, etc.

Numerous electric-power plants in the country (there have been estimated to be about 700 in all) utilize in total a great amount of pipe in steam lines and for the conduction of water, oil, etc.

Of late years imports of wrought pipe have amounted to about 30,000 tons annually. A heavy decline in imports was experienced during last year, however, and the total for the 12 months will probably not exceed 25,000 tons. Detailed imports by country of origin are as below.

#### ARGENTINE IMPORTS OF WROUGHT PIPE

[In kilos]

Country of origin	1928	1929	1930 <sup>1</sup>
Germany.....	12,654,826	15,538,462	(?)
United States.....	9,314,537	8,517,794	(?)
United Kingdom.....	4,161,213	2,567,387	(?)
Belgium.....	1,998,380	536,051	(?)
France.....	1,101,690	425,004	(?)
All other countries.....	852,229	1,431,427	(?)
<b>Total.....</b>	<b>30,062,875</b>	<b>29,016,125</b>	<b>20,323,206</b>

<sup>1</sup> First 9 months only.

<sup>2</sup> Not yet available by countries.



## GALVANIZED PIPE

In addition to its use by the organizations mentioned under the discussion on "wrought pipe," galvanized pipe is much used on farms in connection with water pumping and circulating systems as well as for water circulation in buildings in the cities and in central heating systems. In the case of galvanized pipe, imports previous to 1929 increased at a very rapid rate, but in 1930 a great decrease was noted. During 1928 and 1929 the United States supplied about 10 per cent of the Argentine imports, as against the 30 per cent of the imports of wrought pipe furnished by American manufacturers. Figures on entries during the last three years follow.

## ARGENTINE IMPORTS OF GALVANIZED PIPE

[In kilos]

Country of origin	1928	1929	1930 <sup>1</sup>
Germany.....	12, 192, 338	17, 252, 073	(?)
United Kingdom.....	6, 682, 419	6, 309, 119	(?)
United States.....	2, 306, 491	3, 497, 932	(?)
Canada.....	191, 196	734, 019	(?)
Czechoslovakia.....	476, 564	317, 966	(?)
Belgium.....	292, 574	313, 955	(?)
All other countries.....	530, 543	950, 735	(?)
Total.....	22, 672, 125	29, 375, 799	13, 121, 496

<sup>1</sup> First 9 months only.<sup>2</sup> Not yet available by countries.

## IRON AND STEEL WIRE

Imports of iron and steel wire of all kinds during 1928 and 1929 totaled 126,631,882 and 108,908,486 kilos, respectively. The statistics show 12 classifications; of which the principal, together with the quantities corresponding thereto, for 1928 and 1929, and in some cases the first nine months of 1930, are as follows:

## ARGENTINE IMPORTS OF IRON AND STEEL WIRE

[In kilos]

Items	1928	1929	1930 <sup>1</sup>
Iron or steel wire, up to No. 14, not galvanized.....	37, 192, 318	35, 580, 240	20, 111, 579
Iron or steel wire over No. 15, not galvanized.....	356, 153	242, 843	(?)
Iron or steel wire up to No. 14, galvanized.....	58, 562, 542	47, 477, 561	29, 960, 435
Iron or steel wire over No. 15, galvanized.....	637, 352	256, 190	(?)
Iron or steel wire over No. 21, galvanized.....	422, 996	379, 991	(?)
Iron or steel barbed wire for fences.....	29, 120, 662	24, 455, 200	13, 524, 635
All other classes of iron or steel wire.....	339, 829	816, 461	(?)
Total.....	126, 631, 882	109, 208, 486	(?)

<sup>1</sup> First 9 months only.<sup>2</sup> Not available.

Since Argentina is primarily an agricultural and pastoral country, imports of iron and steel wire are almost entirely destined for use in some phase of agricultural activity as, for example, in farm fences, handling of farm products, etc. In some cases certain types of wire are further elaborated in small industrial plants in the country previous to the use of the wire for the purpose mentioned above. Thus,

for instance, large quantities of galvanized wire are used in the local manufacture of barbed wire, chain link, and other woven-wire fences, poultry netting, etc. There are also a few concerns drawing down the larger sizes of wire for ultimate conversion into barbed wire, fencing, etc. In addition there is an extensive industry engaged in the manufacture of wire nails, and also another branch concerned with the production of bed, furniture, and upholstery springs. Black varnished wire is also used for baling wool and alfalfa and for shocking corn.

#### IRON AND STEEL WIRE NO. 14 AND SMALLER

According to the Argentine statistics, the imports of black wire in sizes larger than No. 14 in recent years were as follows:

#### ARGENTINE IMPORTS OF IRON AND STEEL WIRE TO NO. 14, NOT GALVANIZED

[In kilos]

Country of origin	1928	1929	1930 <sup>1</sup>
Germany.....	21,056,959	19,536,385	( <sup>2</sup> )
Belgium.....	9,923,787	9,820,408	( <sup>2</sup> )
Czechoslovakia.....	2,427,333	2,500,432	( <sup>2</sup> )
United States.....	2,116,202	1,788,402	( <sup>2</sup> )
France.....	853,775	351,190	( <sup>2</sup> )
United Kingdom.....	111,660	200,553	( <sup>2</sup> )
All other countries.....	902,602	1,402,870	( <sup>2</sup> )
Total.....	37,192,318	35,580,240	20,111,579

<sup>1</sup> First 9 months only.

<sup>2</sup> Not yet available by countries.

The foregoing classification is understood to include wire in sizes numbered up to No. 14; that is, wire whose actual gage is greater than that of No. 14 wire. The larger sizes of wire are brought in both for use in their original diameters and also for drawing down and galvanizing locally. The higher import duty charged on wire of smaller gage than No. 14 makes it economical to do some wire drawing in the country. Germany and Belgium together provide about 80 per cent of the ungalvanized (black) wire introduced into this country, since in most cases European prices are much lower than those quoted by American manufacturers, at least in the most saleable sizes and types of wire.

#### IRON AND STEEL WIRE UP TO NO. 14, GALVANIZED

Almost half of Argentina's imports of iron and steel wire are made up of galvanized wire in sizes up to No. 14. It is said that most of this wire is brought in to be made up into fencing, nails, springs, and numerous other products instead of for use in the form in which originally imported. American manufacturers have been obtaining, during the past three years, a larger share of the business in this class than in ungalvanized wire. Users of galvanized wire in these sizes have a high regard for American products of this kind, and some of the important firms prefer them to the European wire under conditions when prices are comparative.

Leading imports since 1928 have been as follows:

## ARGENTINE IMPORTS OF IRON AND STEEL WIRE TO NO. 14, GALVANIZED

[In kilos]

Country of origin	1928	1929	1930 <sup>1</sup>
Germany.....	30,146,867	20,119,954	(?)
Belgium.....	10,372,119	14,012,084	(?)
United States.....	11,183,680	7,993,641	(?)
United Kingdom.....	4,051,805	4,326,290	(?)
France.....	1,653,116	685,019	(?)
All other countries.....	1,185,955	341,593	(?)
Total.....	58,562,542	47,478,561	29,960,435

<sup>1</sup> First 9 months only.<sup>2</sup> Not yet available by countries.

Galvanized wire is usually packed in coils of 40 kilos, and one of the gages most called for is No. 9. Nail wire, which is consumed in large quantities, is usually purchased in what is known in the United States as catch-weight coils; that is, coils weighing 20 to 180 pounds each, although in some instances purchasers desire it in 60-kilo coils.

## IRON AND STEEL BARBED WIRE FOR FENCES

Manufacturers in the United States have always maintained a position among the countries of leading importance in the supplying of barbed wire for use in Argentina. During some years other countries have shipped larger quantities of barbed wire to this country, but at other times, such as in 1928, the United States has furnished over 50 per cent of the entire imports. As is the case of most iron and steel products, barbed wire is sold here entirely on the basis of price, and the manufacturer capable of selling cheapest is almost always given the business.

Recent imports of barbed wire have been as follows:

## ARGENTINE IMPORTS OF BARBED WIRE FOR FENCES

[In kilos]

Country of origin	1928	1929	1930 <sup>1</sup>
United States.....	15,310,138	10,658,666	(?)
Germany.....	5,530,638	6,628,571	(?)
Belgium.....	3,635,992	3,455,560	(?)
France.....	4,134,629	2,970,312	(?)
United Kingdom.....	265,152	616,652	(?)
All other countries.....	144,113	125,400	(?)
Total.....	29,120,662	24,455,200	13,524,635

<sup>1</sup> First 9 months only.<sup>2</sup> Not yet available by countries.

The main and almost the only use for barbed wire in Argentina is in the construction of fences. The style of fencing largely used is composed of native hardwood posts to which are attached several strands of plain galvanized and barbed wire. Many combinations of barbed wire and wire netting are also in use. In addition to the imported product, barbed wire is also produced locally, and the principal firm working along this line is Justo Hnos. y Cia. (Ltda.).

## NAILS

The total imports of iron and steel nails of all classes into Argentina amount to over 10,000 tons per year. This trade is divided into 10 main classifications in the customs statistics of which wrought nails is the most important, this group including about 70 per cent of all imports of nails.

Receipts of nails under the seven principal classifications during 1928 and 1929 were:

## ARGENTINE IMPORTS OF IRON AND STEEL NAILS

[In kilos]

Item	1928	1929	Item	1928	1929
Wrought nails.....	8,458,885	6,772,876	Rivets.....	889,940	981,031
Horseshoe nails.....	416,743	283,654	Tacks.....	422,017	424,175
Tarpaulin nails.....	141,801	236,848	All other.....	134,317	102,246
Wire nails.....	578,200	631,478			
Small nails and brads in general.....	461,346	587,774	Total.....	11,503,249	10,025,082

Considering the group of most importance, namely wrought nails, as indicative of the whole trade, the origin of imports during 1928 and 1929 was as follows:

## ARGENTINE IMPORTS OF WROUGHT NAILS

[In kilos]

Country of origin	1928	1929	1930 <sup>1</sup>
United Kingdom.....	5,270,718	4,383,557	(?)
Belgium.....	1,863,133	1,746,365	(?)
Germany.....	952,278	511,804	(?)
France.....	356,906	126,029	(?)
All other countries.....	15,850	5,121	(?)
Total.....	8,458,885	6,772,876	4,325,635

<sup>1</sup> First 9 months only.<sup>2</sup> Not yet available by countries.

## SCREWS, BOLTS, AND NUTS

The Argentine demand for screws, bolts, and nuts has varied greatly from year to year during the past 10 years. Imports during 1928 amounted to almost 15,000 tons and constituted a record volume, which was very nearly again attained during 1929, but it seems unlikely that such total figures will again be recorded for some time to come. Sales during 1930 and the first months of the present year were much smaller than those during the two previous years.

Among the principal sources of demand are the railways, the furniture and woodworking establishments, the building trades, the metal-working plants, the iron and steel works, the automobile assembly and repair plants, various Government departments such as Ministerio de Marina, Obras Sanitarias de la Nación, Yacimientos Petroliferos Fiscales, Ferrocarriles del Estado, Ministerio de Obras Pùblicas, and many others. Argentina, being primarily an agricultural and pastoral country, has but few (and these are generally

small) manufacturing industries producing articles requiring large quantities of screws, bolts, and nuts.

The imports of all kinds during 1928 and 1929 amounted to 14,937,340 and 14,375,850 kilos, respectively. Imports during 1930 showed considerable decline, and during the first six months of 1931 entries totaled only 5,135,321 kilos. Argentine import statistics on screws and bolts are divided into five customs classifications, and the quantities of the various items entered during the years 1928, 1929, and 1930 were as follows:

#### ARGENTINE IMPORTS OF SCREWS, BOLTS, AND NUTS

(In kilos)

Item	1928	1929	1930 <sup>1</sup>
Wood screws.....	895,957	800,015	392,885
Special screws for roofing.....	20,597	13,927	655
Screws and bolts with or without nuts, not galvanized.....	13,329,147	12,707,823	4,314,214
Screws and bolts with or without nuts, galvanized.....	345,269	445,489	193,547
Screws and bolts with or without nuts, polished.....	246,379	408,596	234,010
Total.....	14,937,349	14,375,850	5,135,321

<sup>1</sup> First 6 months only.

According to the preceding table, 90 per cent of the imports of screws, bolts, and nuts is made up of carriage and machine bolts, nuts, and screws, not galvanized, leaving 6 and 4 per cent representing imports of wood screws, and galvanized and polished screws, bolts, and nuts, respectively.

Considering only the types of bolts, nuts, and screws in greatest demand, imports have been made mostly from the United Kingdom, Germany, and the United States. Detailed figures during the last three years are as follows:

#### ARGENTINE IMPORTS OF SCREWS, BOLTS, AND NUTS, NOT GALVANIZED

(In kilos)

Country of origin	1928	1929	1930 <sup>1</sup>
United Kingdom.....	4,201,473	4,527,052	(9)
United States.....	2,412,004	2,678,357	(9)
Germany.....	3,382,511	2,477,817	(9)
France.....	1,625,150	1,723,431	(9)
Belgium.....	1,469,950	1,073,504	(9)
Netherlands.....	145,673	150,081	(9)
Czechoslovakia.....	3,404	32,985	(9)
Austria.....	24,760	19,291	(9)
Sweden.....	58,982	1,050	(9)
All other countries.....	5,340	24,245	(9)
Total.....	13,329,147	12,707,823	6,382,582

<sup>1</sup> First 9 months only.

<sup>2</sup> Not yet available by countries.

It will be noted from the above table that slightly over 30 per cent of the imports have been brought in from the United Kingdom. This is believed to be due chiefly to the large amounts of materials purchased and used each year by the British-owned railway companies operating in Argentina. These companies make it a policy almost

entirely to buy equipment and materials from British firms. Concerns handling locally made and American bolts and screws have many times offered their wares to these British railways in comparison and competition with those from the United Kingdom, but without success, notwithstanding that they are able to show in many cases very substantial advantages in price. There appears to be but small possibility of this situation changing, regardless of the influence of local manufactures and the intensive competition between American and German, Belgian, French, and other manufacturers selling in this market.

According to the United Kingdom figures on exports to Argentina, wood screws form only a comparatively small portion of the total imports of screws, bolts, and nuts—only about 8 per cent of the total being composed of wood screws. The principal British firm in this branch of iron and steel trade is Nettlefolds (Guest, Keen, & Nettlefolds (Ltd.)) whose products also are in considerable demand from firms outside the railway field.

As stated previously, the total imports of bolts and nuts during 1930 showed an important decline over the previous year, one of the reasons for this condition having been that imports during 1928, which were fairly large, were not followed by the sales during 1929 and 1930, with the result that large stocks were carried over into 1930. In addition retail sales of imported products were not helped by the unfavorable economic condition of the country beginning with the early part of 1930. In connection with the carry-over of stocks it is said that one very important importer of bolts, nuts, and screws had on hand, early in the year 1930, about 200,000 pesos worth of such material. It is also said locally that during normal years imports of bolts and nuts make up about 40 per cent of the total domestic consumption. Two brands of American bolts and nuts are particularly well known in the Argentine market and together account for the bulk of the exports of such products from the United States to this country.

All of the sizes of bolts and nuts in common production, from 5 to 14 millimeters in diameter and from 20 to 400 millimeters in length, are sold in Argentina. However, if it were possible to designate the sizes in greatest demand it would probably be found that the average demand is for bolts of from 7 to 10 millimeters in diameter and 80 to 150 millimeters in length.

## OUTLOOK FOR THE IRON AND STEEL TRADE

The outlook for the iron and steel trade during 1931, as reflected by the import figures for the first four months, is hardly satisfactory. Iron and steel products were imported during those months to a value of only 20,268,135 gold pesos as against 30,256,322 pesos during the same period of 1930—this being a decline of about 33 per cent. Argentine business in iron and steel products during recent months has been very much depressed, and in most lines firms state that they are doing only about 25 per cent of what would be considered normal turnover. Among the factors considered as responsible for this situation may be mentioned the fluctuation in exchange, bringing in its

wake hand-to-mouth buying; the very low prices obtained for Argentine agricultural produce; uncertainty, or rather unsettlement, of the political situation; and other factors of lesser importance.

Building construction, which in the recent past had been the source of a large demand for certain iron and steel products, has fallen off greatly, and the indications are that this depressed state of activity is likely to continue for some months to come. On the other hand, much has been done to bring nearer to realization various important projects for the building of long stretches of highways throughout the country. In the Province of Santa Fe contracts were recently awarded for the construction of about 230 kilometers of road, but it is understood that the actual starting of work has been held up. The Federal toll road project concerning a road between Buenos Aires and Cordoba, and Buenos Aires and Bahia Blanca, is still being discussed, and although several firms entered bids on the work the opinion appears to be that various points, especially that referring to the method of financing, remain to be cleared up before definite progress may be made.

There is much agitation for road construction, and some work is at present being done, utilizing funds obtained from the application of a tax of 2 centavos on gasoline sales throughout the country (3 centavos in the Province of Buenos Aires). As funds from this source become available from time to time new stretches of road are constructed. Recently news has been given out that a project is at present being studied for large-scale construction of highways from funds obtained through the gasoline tax. An important project has been worked up for the construction of a large dam and power house in the Province of Cordoba, but owing to impediments in the way of financing the construction at the present time, the time limit for the acceptance of bids has been postponed until next November.

The provincial government has now under study several schemes for the construction of grain elevators on a large scale throughout the country, one of the projects involving about 600 elevators. It is generally admitted that Argentina lacks the efficient grain-handling methods that would be available were elevators to be utilized throughout the grain-producing zones, and it seems reasonable to expect that some sort of elevator-construction scheme will be adopted in the near future. Railway construction is practically at a standstill, both on the part of the private lines and those operated by the State railways. Construction on the Lacroze subway is proceeding normally, and the job should be finished within the next few months. Although concessions for the building of other subway lines had been obtained some months ago by the Cia. de Tranvias Anglo Argentina and a Spanish syndicate, nothing has been done in the way of, and immediate prospects do not seem bright for, the actual beginning of work.

The prospects of the future are not entirely dark, however, if it is considered that Argentina's grain exports are far in excess of last year's exports in bulk, and as a result, in spite of low prices, will be approximately equal in value to those of last year. Exports of grain now (June, 1931) amount to about 116 per cent in bulk and 85 per cent in value of last year's shipments, and export values appear to be

tending upward. The trade balance for the first four months of this year shows a credit balance of 10,000,000 gold pesos as against an unfavorable balance last year of 16,000,000 gold pesos.

The sale of American iron and steel products will depend this year, as during former years, upon the ability of manufacturers in the United States to compete with the prices quoted by European firms. At the present time Belgian, French, and German manufacturers are quoting, especially on the heavy material such as bars and flats, sheets, plates, shapes, beams, pig iron, and a few other items which make up in total a large percentage of the entire tonnage, prices so low as to make competition most difficult. In general, better opportunities would appear to be afforded in the other lines of iron and steel products than those mentioned here.

