

IRON AND STEEL

MARVELOUS GROWTH OF PITTSBURGH'S GREAT INDUSTRY.

Its Numerous Blast Furnaces, Rolling Mills and Steel Works — An Immense Outfit — Women Work in Mills.

SOME startling statistics regarding the iron and steel industry of Pittsburgh have just been made public by the annual statistical report of the American Iron and Steel Association. They were compiled by James M. Swank, the general manager of the association, and were presented to the members. Mr. Swank is the publisher of the Iron and Steel Bulletin and a recognized authority on the matter. His figures may be accepted as reliable.

Pittsburgh, says a correspondent of the New York Journal, has now twenty-seven blast furnaces, twenty-nine steel works and thirty-four rolling mills. In 1892, when the iron industry was booming, there were produced in the twenty-six blast furnaces (the number existing at that time) 1,775,257 gross tons of pig iron. In 1893, with one more furnace, the total production was 1,697,207, or only 78,050 tons less.

This was the panic year during which wages were cut lower and lower until the workers rebelled and long strikes were the result. In 1894, which was also hard times year, the production of pig iron was 1,782,079, or 622 tons more than during the boom year of 1892.

The report also shows that in 1892 there were sixty-two rolling mills and steel works which produced 1,605,974 tons of crude steel. In the following year the decrease was only 15,201 tons, while in 1894, when the country began to feel the beneficial effects of tariff reform, the production was 1,893,696, or almost 300,000 tons more than in 1892.

The total production of pig iron,

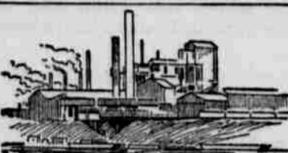


A WOMAN AT WORK IN A PITTSBURGH TIN PLATE MILL.

steel ingots, crude steel, rails, sheets, plates, rolled iron and steel, etc., in 1892 in this city was 7,861,397 tons. In the following year there was a slight decrease to 7,377,881 tons, which in 1894 jumped to 8,561,819 tons, or 700,422 tons more than during the big year of '92.

The origin of the iron and steel industry, its growth and development is a marvellous story. The beginning of the manufacture of iron in Western Pennsylvania, and the first furnace built, dates back to 1790. It was then located in what is now the most fashionable residence section of Pittsburgh, Shady Side. A rolling mill on a small scale was erected there in 1811.

The close proximity to the inexhaustible supply of soft coal fields and the natural shipping facilities afforded by the Ohio, Monongahela and Allegheny Rivers, made Pittsburgh a magnet for the iron and steel pioneers, and the one rolling mill plant quickly spread and multiplied.



A BLAST FURNACE.

Within a few years virgin forest trees gave way to smokestacks, and at night scores of furnace fires around which toiled brawny, half-naked men lit up the surrounding hills and gave an awesome weirdness to the small village.

In 1803 an iron and brass foundry was established. It afterward cast the cannon which blazed in victory from Perry's little fleet on Lake Erie. Cannon have been made here for three wars. During the last Civil War over 2000 guns were made.

The "Iron City" produces one-fifth of the entire amount of iron and steel made in the United States, and one-third that of the State of Pennsylvania, the production of the latter being over one-half of the output of the country. The largest Bessemer steel works and the greatest crucible plant are located here.

A year ago the total number of operatives was 2000. This of course includes Homestead, Braddock and other towns within a few miles of the city, and which will be included in the Greater Pittsburgh. The employees receive in wages in one year between \$38,000,000 and \$40,000,000.

The largest concern is the Carnegie Steel Company, which is capitalized at \$25,000,000.—It employs 10,000 men and boys. In the way of production it turns out 100,000 tons of pig iron per month, and the same number of tons of open hearth and Bessemer steel blooms, billets, structural shapes, etc.

The finished product aggregates from twenty to twenty-five cars per day. At the Braddock rail mill steel rails thirty feet long are rolled out at the rate of two each second, or 120 per minute. An average day's work is eighteen miles of single track.

On the opposite side of the Monongahela River, and three miles below Braddock, are the Homestead works, made famous by the strike and riots of 1892. Armor plates, beams, etc., are the principal products of this plant. The armor mills are now practically shut down on account of no work.

The company has finished its contracts for Government work, and is now ready to make armor for any foreign Power. In the structural mills the employees are getting out an order of 37,000 tons of beams and girders for the Manhattan "L" road system.

Since the armor plate frauds it is almost as hard to break into the Homestead mills as it is to get out of jail. No one is admitted without a pass, a uniformed guard standing as sentinel over a bridge at the main entrance. As the visitor who is fortunate enough to secure a ticket approaches the mills from the yard the whole interior appears to be filled with a shower of gold. From the mouth of the "converter," a fan-shaped flame of vast proportions sweeps roofward, and from this comes the torrent of fiery sparks which sweep high in the air, and then fall on the earthen floor, kept continually covered with water.

On a narrow ledge at the far side of the building, high up in the air, and directly opposite to the "converter," stand three men, the "melter" and his assistants. They are in a cowering attitude, as though shrieking from the flood of fire, and the "melter," with a glass held to his eye, watches the

flame coming from the "converter," until by its color he recognizes the right moment for turning out the molten steel into the molds. At his signal the "converter" is tilted forward, sending out metal as bright as silver. Thus all day and night the melter stands and makes the basis of wealth for the world by the control of living fire. Personal skill alone qualifies him for his office, for there is no thumb rule by which he can control this mighty element.

The practical process of making Bessemer steel consists in putting pig iron into the "converter" and blowing the carbon out of it by means of immense draughts. The sheets of flame, one sees are incandescent carbon. Later the steel is remelted and treated with spiegle iron, etc., to restore the right quantity of carbon.

Next to the Carnegie interests the largest plant is that of Jones & Laughlin. At the head of it is B. F. Jones, who, as Chairman of the Republican National Committee, ran the Blaine campaign. The firm employs 3500 men and treats them better than any other company.

Within the past few years the iron business has been revolutionized. Puddling iron has given way to the improved and cheaper methods of making steel. Steel has taken the place of iron in all kinds of structural work, and scores of puddling furnaces are idle.

Steel does not wear as well as good iron, and shrewd manufacturers predict a return to the days of puddling. Jones & Laughlin have less than one-fourth of their puddling furnaces in operation, but will have use for them later.

The day of high wages in the iron and steel business has passed never to return. Up until the time when the Carnegie Steel Company, after a great loss of life, succeeded in almost breaking the Amalgamated Association, scores of men who were paid according to the production of the mills upon which they worked, received from \$25 per day upward.

Rollers came to the mills in carriages and behind fast horses, and lived on the bust they could get. Hundreds of men who a few years ago, if they did not make from \$10 to \$15 per day would have bemoaned their hard luck, are now working for \$2 and \$3 per day.

Notwithstanding the reduced duty on tin plate, which the manufacturers claimed would compel them to close their mills, the tin plants are flourishing. One of the odd features of the erection of tin plate mills is the introduction of women in the iron and

steel trades. At the plant of the Monongahela Tin Plate Company in South Pittsburgh, and which is now partly owned by United States Senator Quay, women work on the floor of the mill alongside men. They wear coarse clothing, with heavy aprons, and on their hands they have gloves.

The women stand at the rolls with tongs and catch the plates as they come out. They cut, "dip" and separate them, and do the work better than men. The women learned the business in Wales, and earn from \$5 to \$8 per week. Husband and wife work in the same mill, the former at the furnace and the latter at the rolls.

For years girls have been employed in the bolt and nut factories of that city, but this is the first time they have actually worked on the floor of a mill with the glare of a furnace on one side and the whirr of heavy rolls on the other.

As it is the custom for women to work in tin mills in Wales, the men do not object to the women. The latter will be taken into the Amalgamated Association, as the work they perform is covered by the scale.

The iron and steel business will further develop by the building of new railroads and the Lake Erie and Ohio River Ship Canal. The latter is a certainty, and, when completed, will make Pittsburgh in reality the greatest manufacturing city in the world.

For Shying Horses.

A really remarkable device for making any shying horse perfectly calm and tractable is the new invention of Henry Small, of this city, says the Hartford Times. Properly speaking it is not a "bit," for it does not go into the horse's mouth at all, but is only a simple nose-piece that goes over the horse's upper lip, but does not necessarily draw on or even scarcely touch it unless the driver has a gentle pull on it; then it touches the end of the animal's nose or upper lip; and that mere touch, which should not be increased much, does the whole business.

Mr. Small's contrivance consists of a simple head strap, properly braced and coming down between the horse's eyes and nostrils, to its end in the shape of a sort of little metallic upper lip. This latter little piece of metal, only about two inches long and not half an inch wide, is humorously called a "trolley bit." Its curving side-ends, like an ordinary bit, are so devised that a very slight, gentle pull on the reins brings the "trolley bit" against the tip of the horse's nose.

In complete absorption in the study of a new experience the horse may be driven right up by the side of a noisy locomotive, or of a gong-banging trolley car, that presents to the horse, under ordinary circumstances, the sinister aspect of a moving, perhaps a living thing, going without any vis-



NOSE BIT FOR HORSES.

ble means of compulsion; and in his strict attention to the new sensation at the tip of his nose he will take no notice of the car of the locomotive. The queerest thing of all is the fact that no amount of use or familiarity with the nose-toucher arrangement seems to lessen the horse's interest in it.

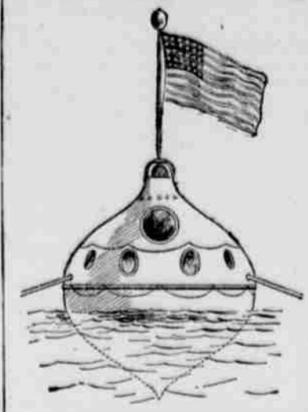
The Pogonip.

The following explanation is given of the remarkable condition expressed by the word pogonip: "This is said to be a name given by the mountaineers of Nevada to a sort of frozen fog that appears sometimes in winter, even on the clearest and brightest days. In an instant the air is filled with floating needles of ice. To breathe the pogonip is death to the lungs. When it comes, Indians as well as whites rush for shelter. It appears to be caused by the sudden freezing in the air of the moisture which collects about the summits of the high peaks."—New York Ledger.

NON-SINKABLE LIFE-BOAT.

Description of an Interesting Craft Constructed by a Chicago Inventor.

A. L. Hedberg, a Swedish inventor residing in Chicago, exhibited in the Inter-Ocean office the model of a new life-boat which he has just patented. Made of galvanized iron—in actual service different materials can be used—the miniature looks like a large turnip, and is in two parts, cut apart



THE NEW NON-SINKABLE BOAT.

horizontally at the line of greatest girth. The halves, however, are firmly clamped together with a watertight connection, when the toy is dumped into the water, to which it takes as jauntily as a rubber feather, and the only means of entrance and exit then is via a little upward opening like a melon plug, and very easily made use of, as also readily rendered watertight in its turn. At the top are several little holes for ventilation, but which can also be closed at will. Furthermore, there are six windows, round as portholes in the ordinary ship. Over all this is a flagstaff which can be lowered and put up at pleasure, with waterproof connections and ventilation device, and on the top of the flagstaff is a lantern. There are two oar holes also, one on each side, similarly water-tight in the play of the pair of strong serviceable oars.

And, last and most important of all, the apparatus always rides the wave right-side-up-with-care, because of the abundant ballast in the bottom. The interior of the miniature is fitted up completely, with seats all around the wall, and there are straps for additional support in case of storm.

For practical use, the inventor proposes a "life-boat" of this description which shall be either eight feet high by six feet in diameter, at the widest girth, with a seating capacity of ten persons, or else one ten feet high and eight feet wide, seating twenty-five persons. The former style, made wholesale, would cost only \$125, and would carry 1000 pounds without sinking more than four feet in the water, riding as buoyant as a top. In the base would be plenty of room for supplies and water to last from ten to fifteen persons several weeks, without any danger from water or vitiated air.

For the first-named size of boat the circular entrance would be three feet in diameter, and the windows one foot. Chains are attached on the outside for people out in the water to catch hold and climb up by. The life-boat cannot possibly tip over, but simply bobs up and down like a cork.

Already on Lake Calumet there is a little "life-boat" of this pattern, and the inventor expects soon to have one on Lake Michigan.—Chicago Inter-Ocean.

Where Girls Are Depreciated.

In some parts of Sicily the birth of a girl is always an unwelcome announcement. In fact, it is regarded as a sad event and is made known to the world by a black flag, which is hung out of the window. The reason that such an event is looked upon as a misfortune is because the young woman has to be supported by her family until married and then she is supposed to come to the bridegroom with a dot. This, of course, is trying, but the Sicilian father is not as badly off as the American parent. Girls in Sicily are married between the ages of fourteen and sixteen. They live in seclusion until they are married, when they are disposed of on a purely financial basis.—New York Telegram.

Solitude Made Her Insane.

An insane woman was brought to Seattle, Wash., from a ranch in the interior of the State last week and sent to an asylum. The supposed cause of her insanity suggested by the doctors was "the solitude of ranch life."—New York Sun.

HANDICAPPED.



Grant Hamilton—"Phew! This is the worst hill I ever tackled."—Frank Leslie's.

WHAT WOMEN WEAR

FOR STREET WEAR MOHAIR IS GREATLY USED IN PARIS.

The Latest Fad for Waists—Color to Predominate in Millinery—Up-to-Date Dust Cloaks.

A USEFUL rig of many possibilities brought over from Paris is a street costume of mohair in a beautiful huckleberry blue. Mohair is in Paris the texture at present most seen in plain street gowns, and the favorite model is a plain skirt and a box coat with a back in one piece.

Sometimes this will hang plain from a pointed yoke, and in almost every case two little openings are left at the bottom of the under arm seams, making the slits seen in masculine or shirt bottoms. Close stitching gives all edges a neat tailor finish, and where the seams of some of the skirts will be left plain others will be strapped over with narrow bands of the same material. The model of the skirt is a godeted back and a front cut of the width of the material, which runs to bias seams into the back, and produces at the side that outward flirt so becoming and easy to the feet. The buttons used will be great things as big as butter plates, of smoked pearl, horn or fancy metal, and even those of Dresden china, gayly flowered, are said to be in good taste.

Again, a mohair gown will show no buttons at all, the fronts of the single-

it has become such a glorified creation that those who look for it, remembering the old alpaca and linen "dust-



AN IDEAL DUST CLOAK.

ers," fail to recognize it for what it is. The fin-de-siècle dust cloak is made of "gloria" silk, which is both rain proof and dust resisting. It is so light that it will not crush the most elaborate dress—not even the sleeves—and while it envelops the entire costume, the wearer of the garment



CRISP AND COOL FROCKS.

breasted jacket fastening neatly under a stitched flap, such as finishes a man's box coat.

As for the French mohairs themselves they are most beautiful. The handsomest patterns are enormously wide and in a loose sort of bunting weave, and not even in black do they suggest the shiny funereal things one is accustomed to associate with the name. In color the huckleberry blue is perhaps the latest tint, but a more gracious and becoming one is a soft gray brown that seems especially effective when worn with a blouse in any of the gentle greens now fashionable.

One brown mohair gown, that has just made its debut in New York, has a bodice in crinkled silk, patterned gorgeously and confusedly with palm leaves in many colors. It was simply gathered at the neck and waist into a belt and stock of black satin ribbon, and the sleeves, which were entirely without stiffening, fell in a great loose puff three-quarters length. This palm leaf silk, together with gauze patterned in the same way, is the very latest French fad for waists. In some of the gauzes the tones are wonderful, great splashes of flame shading into emerald green, and again melting into effects that are almost brown. No trimmings are used with them, the many colorings of the texture being the point intended for notice. There are always a plain ribbon stock and belt, however, and sometimes these will reproduce a predominating tint in the gauze, emerald green, a flame red, or else an orange hue that is positively startling.

Indeed, if one is to judge from the bodices, and some of the flower-decked hats that come over to us from Paris, color is to be more and more the thing as the season advances. Hats big and little are simply laden down with gay posies. In some cases, with the exception of a narrow fold of velvet that faces the under brim, there is not a ray of other trimming, and the blossoms will be massed irrespective of tint or degree. Modest daisies, for instance, will hobnob with gorgeous flags, and haughty orchids rub elbows with field violets. Again, on a single low crowned sailor hat there will be ivy leaves with the violets, and, besides, a wreath of roses with loose trembling petals that shade all the way from palest pink to a red so deep that it is almost like the black of the famous German tulip. Sometimes, indeed, there will be a black rose under a brim, and with much color above this never fails to be effective.

DUST CLOAKS.

Who ever sees a dust cloak nowadays? No one. Not because the dust cloak has ceased to exist, but because

does not suggest a tarpaun wrapped parcel, because the coat looks stout in itself. What could be nicer than such a dust cloak for the dweller in suburban parts, the frequenter of suburban trains, the taker of dusty cabs?

DAINTY STRAW HAT.

It is noticeable that many straw hats are scantily trimmed, but examination will disclose the fact that the straw is very prettily colored and elaborately woven. That, according to current usage, makes permissible but little trimming, which often consists of little more than one or two aigrette bunches of violets, the long stems twisting into cords that pass about the brim, and, perhaps, catch it up here and there. This rule, however, is by no means imperative, but is tasteful in its results, as can be judged by consideration of this pictured hat which is of old gold straw bent into deeper points at the sides and coming down with a graceful sweep in front and back. It is trimmed with a large bow of ribbon and bunches of pansies, smaller clusters of the flowers showing



HAT OF OLD GOLD STRAW.

beneath the brim. Around the neck a scarf of mauve chiffon is worn that falls down the front in long ends and is ornamented with bunches of pansies corresponding to those on the hat. With such a beautiful accessory to attract attention from the headgear there is no danger of adverse criticism upon the latter because of a lack of trimming, if, indeed, fault would be found even on close examination.

Maryland has an assessed valuation of \$497,307,675.