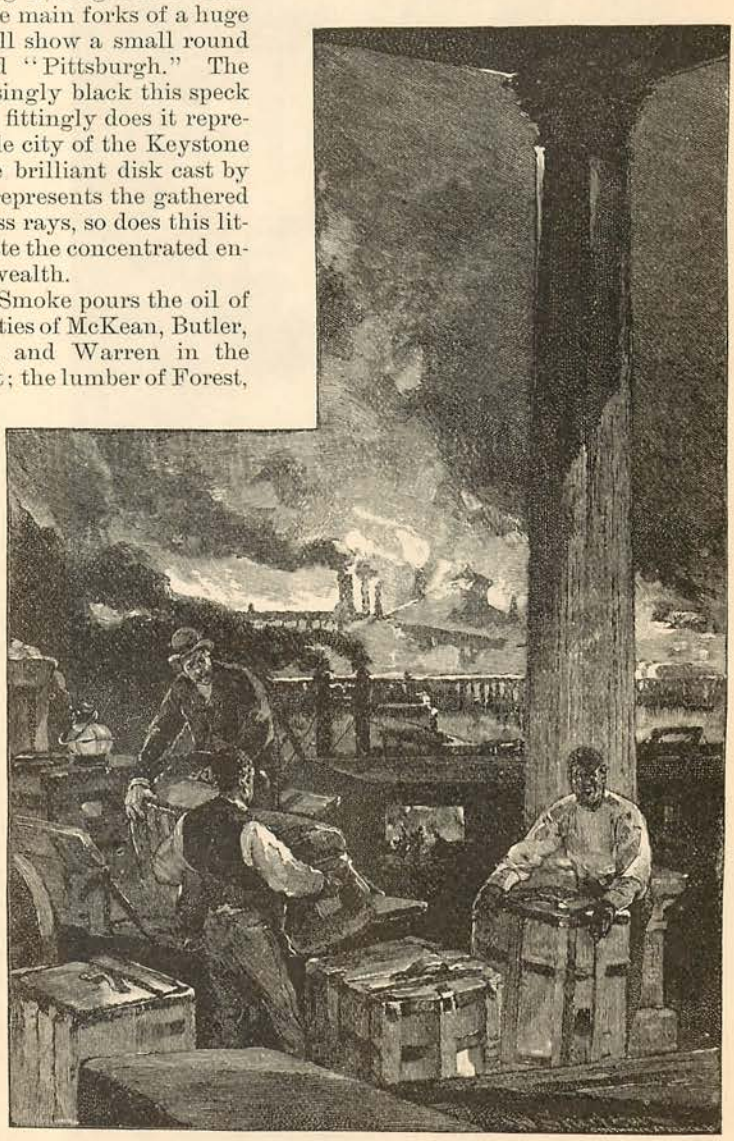
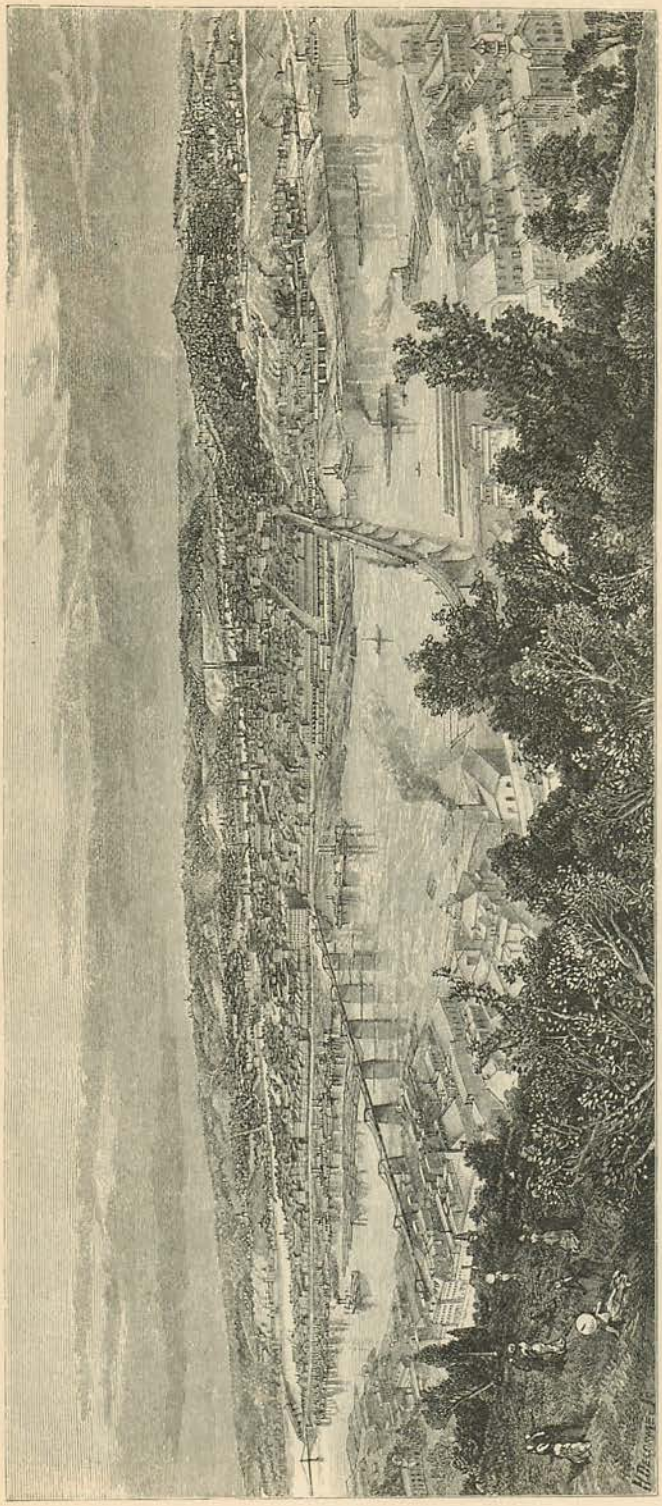
THE CITY OF PITTSBURGH.

IN the ordinary map of the United States, where the great commonwealth of Pennsylvania occupies a space equal in area to a school-girl's palm, there may be traced, set in the western end of this area, a great irregularly formed letter Y. Its stem wriggles off through the western boundary of the State, and its divergent arms can be traced until they pierce New York State on the north, and Maryland and Virginia on the south. And right in the crotch of this big Y, lodged like a tantalizing apple in the main forks of a huge tree, most maps will show a small round black spot labelled "Pittsburgh." The more uncompromisingly black this speck is shown, the more fittingly does it represent this remarkable city of the Keystone State. And as the brilliant disk cast by the burning-glass represents the gathered potency of countless rays, so does this little inky disk indicate the concentrated energy of a commonwealth.

Into the City of Smoke pours the oil of the producing counties of McKean, Butler, Venango, Clarion, and Warren in the north and northeast; the lumber of Forest, Clarion, Indiana, Jefferson, Armstrong, Potter, and McKean counties on the east; the coke of Westmoreland, Fayette and Allegheny counties on the southeast; while from all quarters of the compass comes by rail and river to Pittsburgh her matchless bituminous coal; or, departing over these highways, she sends it to the uttermost corners of the South and Northwest. At the foot of the two great valleys of the Alleghany and Monongahela, and at the head of the greater vale of the Ohio, Pittsburgh gathers the crude wealth of the first two to her murky bosom, while through the greater gateway she sends the finished work of her coal-fed factories. And to feel the regenerative touch of her magnificent fuel, there come the silver-bearing ores of far-off Utah, the homelier ores of Michigan, Lake Superior, and nearer points, and the sand and alkalies of distant States, to go forth as silver, copper, iron, and glass. Through miles of under-



A NIGHT ARRIVAL.



VIEW OF PITTSBURGH.

ground pipes giant pumps force crude petroleum from the wells to acres of odoriferous refineries that add their smoke to the perpetual cloud of carbon that marks Pittsburgh from afar.

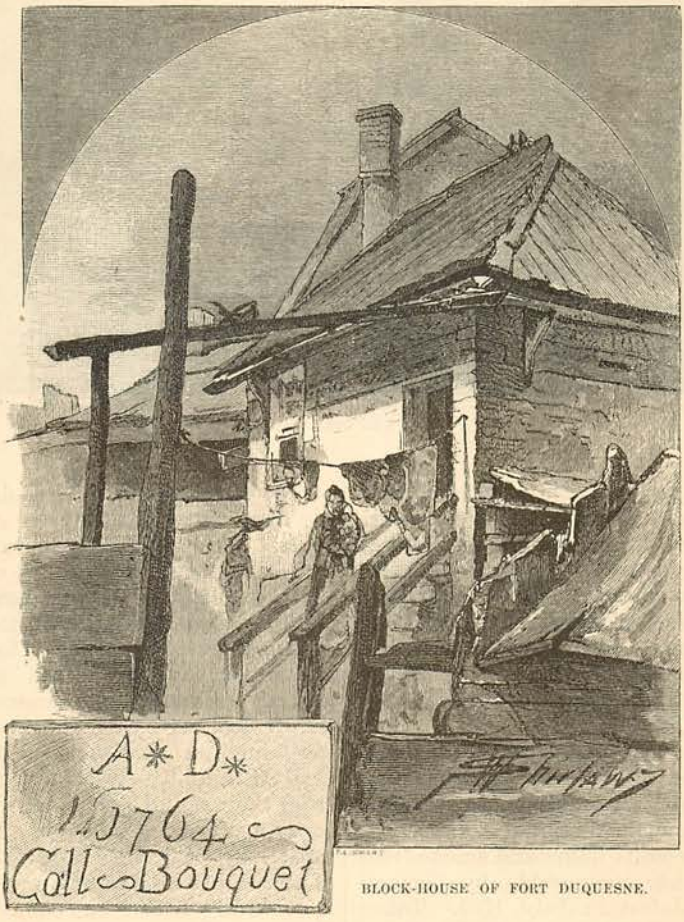
The lens will show that a drop of water teems with life, and in this paper, pencil, pen, and graver must stand in lieu of the microscope, serving to give our readers a glimpse of what is held in the circle of that black spot on the map of Pennsylvania.

To write of the Pittsburgh of the past is to repeat the labor of the historian. Fort Duquesne and Braddock's disastrous field are topics familiar to the American schoolboy; and though the earlier days of the busy city are full of an interest peculiarly their own, it is the province of this paper to deal rather with the Pittsburgh of 1880 than with the noted fort of 1750 or the Pittsburgh of 1780. This much can, however, be outlined. George Washington, on November 24, 1753, stood at the junction of the two rivers, and made this entry in his journal of that date: "I think it extremely well situated for a fort, as it has absolute command of both rivers." During the following year the

stockade of Fort Duquesne first cast its shadows on the spot. Of this place a local historian, Neville B. Craig, fittingly writes: "Great Britain, France, and Great Britain again, Virginia, the United States, and Pennsylvania again, have each in turn exercised sovereignty here. Twice it (Fort Duquesne) has been captured in war; first by Contrecœur in 1754, and by Forbes in 1758. Once besieged by Indians in 1763, once blown up and burned by the French in 1758, it was the field of controversy between neighboring states in 1774, and finally of the civil war ('Whiskey Insurrection') in 1794."

To-day the redoubt, or "block-house," built by Colonel Bouquet in 1764 still exists. In its weather-beaten logs are seen the peculiar openings through which were pointed the flint-locks of the beleaguered ones long ago. Pigeons flutter about this quaint building, whose surroundings are Milesian rather than aboriginal. Mrs. Lee is a lady with a sunset tint in her hair, and the quickness of temper that usually accompanies capillary ruddiness.

"A quaint old building this," remarks the stranger at the portals of Pittsburgh's oldest house.



BLOCK-HOUSE OF FORT DUQUESNE.

"If it's acquainted wid this house ye are, I wud be axin' yez for why I am payin' the sum of foive dollars the month's rint for the same, an' bud the two rooms of it, an' the lady kapin' shtore on the flure below, an' payin' only the thriflin' sum of four dollars, an' she wid a fine big room."

This volley from the ancient redoubt failing to disclose a foe, a lull ensued, explanations followed, and Mrs. Lee and her brood of little ones and the fluttering pigeons were left in quiet possession of the block-house of departed Duquesne.

FROM THE BELL TOWER.

The stone tablet placed by Colonel Bouquet over the doorway of this centenarian among buildings now fills an honored place in the new city buildings of Pittsburgh, whose tower affords the stranger a handsome view of the smoky blocks and bustling streets and tall spires, framed in everlasting smoke or fire, as the viewer chooses day or night for his trip to the roof of the City Hall.

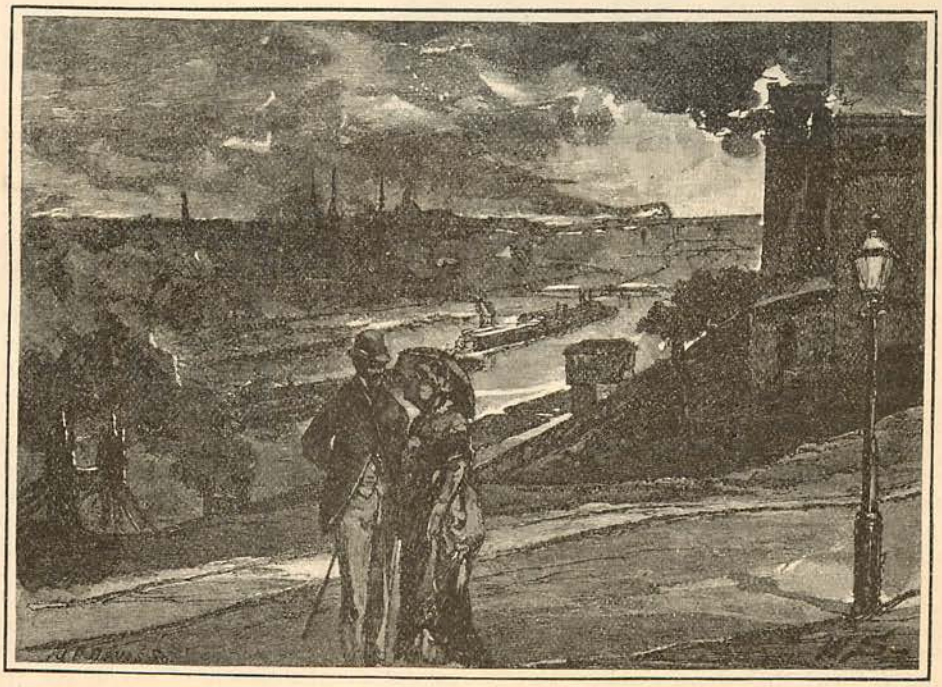
This stone tablet and the old redoubt alone remain to suggest the Pittsburgh of a century ago. A great dépôt covers the site of the ancient fort, and a monstrous steel-works vomits flame and smoke from the spot made memorable by General Braddock's defeat in July, 1755. Taken all in all, the Pittsburgh of to-day is one of the most interesting places on this continent. The watery forks of our great Y compress the growing city until its crowded streets are prolonged eastwardly, while in the angles of our symbol are found the "South Side" of the city proper, the sister city of Allegheny, and the busy, thriving suburbs. To the latter the care-worn Pittsburgher flees when his daily duties end, glad to escape for the time the all-pervading soot and smoke. Up the two rivers that are nearing their end, and down the new-born stream, the hills and vales are covered with thriving settlements, all integral parts of one busy whole, and combining to form virtually but a single community of a quarter of a million souls. Topographically its varied surface is not its least charm. Mountain and bluff, stream and ravine, have until recently defied the skill of the engineer and of the street-maker. That liberality and pluck have triumphed is evident to any of our readers who, journeying Pittsburghward, will patronize the nerve-trying "inclines" that scale the bold cliffs of Coal Hill, and view the tripartite valley from the summit. It is a view that will repay a very long journey. Eye and ear must long bear witness to the eloquence of the sights and sounds enjoyed, and it is doubtful whether any equal area in this broad republic would so forcibly suggest to the stranger what is meant by a busy, energetic, and wealthy manufacturing city.

Aside from her great industries, Pittsburgh, as the head of navigation on the Ohio, claims attention, and extends her influence along the 18,000 miles of navigable streams attainable by her river steamers. This influence she retains in spite of the rapid growth of that great destroyer of river trade, the railway. On either side of the three valleys that radiate from Pittsburgh are found the omnipresent parallel lines of rails, six arms of a great cuttle-fish, whose body is the

smoky city, and whose suction disks are the station-houses that draw the life from the trade of each stream. On the Allegheny this trade has long disappeared entirely; the Monongahela bears upon its slack-watered current a line of fine boats that have existed since the earliest days of steam navigation, but whose business begins to feel railway encroachment. The Ohio is plied by a line of Cincinnati and Pittsburgh packets, and by smaller craft earning a precarious existence between "way" points, but the glory of the river is departed.

And yet, at favorable stages of water in the fickle Ohio, the levee at Pittsburgh shows most animated scenes. A stranger reaching the city during a stage of water favorable for boating—say four to eight feet of water in the channel—would be treated to a most interesting sight on the Monongahela Wharf, between that many-piered and venerable structure the Monongahela Suspension-Bridge and the "Point." This scene is especially characteristic when witnessed from the upper or "hurricane" deck of some big 1000-ton steamer. The observer is reminded of nothing so much as of a freshly disturbed ant-hill. This simile is borne out by the action of the double stream of big black "rousters," *i. e.*, colored boat hands. As these pass in opposite directions over the gang-plank, each biped ant bears, not a milk-white egg, but a fat sack of bran as to the out-goers, or a box of glass or bar of steel as to the incoming procession. This double process goes on until the great hull has exchanged its St. Louis freight for Pittsburgh's products. And so skillfully is this same hull fashioned and adapted to the precarious channels of Western rivers, that, with a thousand tons of freight aboard, a Pittsburgh and St. Louis passenger and freight boat will scarcely "draw" four and a half feet of water. And in this way, during the first three months of 1880, 10,000 tons per month of the varied products of Pittsburgh's fiery-hearted furnaces were wafted by steam and current 3500 miles toward the setting sun. Kindly showers thus washed away 30,000 tons of freight from the railroads.

But the magic wand which most potently transforms the river-front of Pittsburgh, which brings intense energy out of apathy, which turns day to night and silence into a Babel of sounds, is the sudden advent of a "coal-boat" stage of water, *i. e.*,



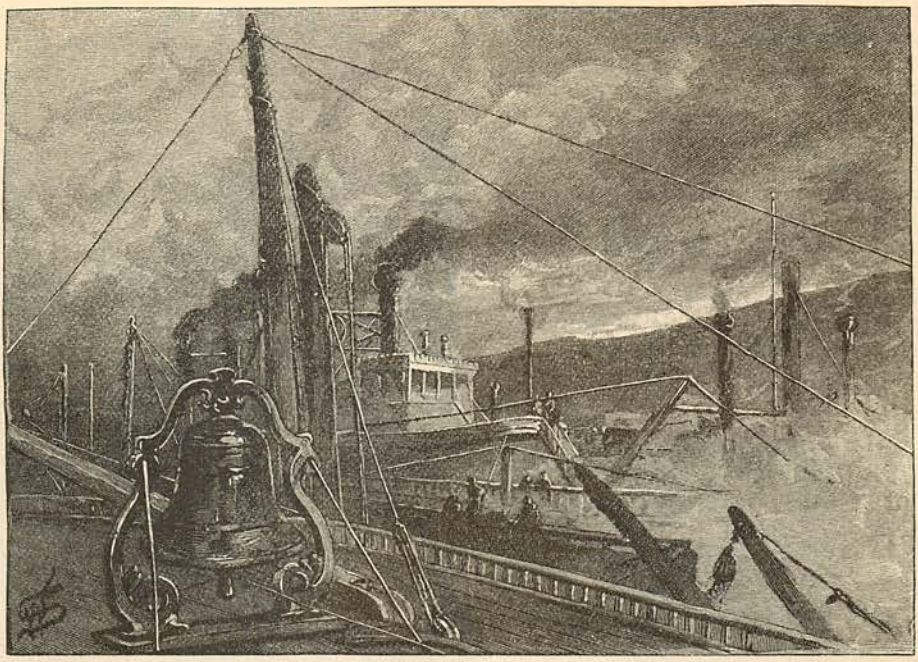
VIEW OF PITTSBURGH FROM THE OPPOSITE HEIGHTS.

FROM THE HURRICANE DECK.

anything over eight feet. This occurs when both rivers, swelled by rapid thaw or continued rains, send down their quickened tides, so that both freshets reach the Ohio at the same time. About the mouth of the Monongahela, or safely moored in its slack-water "pools," float hundreds of great clumsy craft that have the draught of a small ocean steamer. These are laden deep with millions of bushels of the wonderful bituminous coal and matchless coke of Western Pennsylvania. The coal, in glistening irregular cubes, is fresh from a hundred collieries up the beautiful Monongahela Valley, and the coke, in huge barges that hold 35,000 bushels each, is the output of the adjacent regions, where 5000 coke ovens blacken the fair land and sky with their dense smoke. In 1879 62,000,000 bushels of coal and 3,500,000 bushels of coke passed through the locks of the Monongahela, dependent for its going upon the caprice of Jupiter Pluvius. These awkward-looking boats, with their load of carbon, may have lain thus for months, while the price of their cargoes has doubled in the far-off markets for which they were loaded, and their owners are moved to profanity, or pray for rain to float off their waiting cargoes.

Pittsburgh is the home of 130 tow-boats of a pattern incomprehensible to Eastern eyes, for they do not "tow," but push. Their homeliness is outweighed by their bull-dog tenacity of purpose, when it comes to their legitimate business of harbor and long-trip towing of cumbersome fleets of coal-laden craft. These are lashed in a solid fleet, of which the steamer is the hindmost hull. In cost these craft range from the perfectly appointed monster representing a fortune of $50,000 and the power of 1700 horses, down to the battered veteran that might bring $2000. This motley fleet is huddled in port, each boat ready and anxious to move these coal craft over the hundreds or thousands of miles of tortuous Ohio or muddy Mississippi. Their fires are laid and their boilers are filled, and when the coal-boat stage comes at last it finds Pittsburgh boats and their crews galvanized into intense action.

It may be that this long-expected rise is an affair of a single day, or of forty-eight hours' duration at best. The rivers of Pittsburgh rise and fall like a jack-in-the-box. There may be three feet of water on Saturday, thirteen on Sunday, and Monday's sunset will redden "six feet scant" in the channel. Between these extremes is the tide which, taken at the flood, leads the coal fleet to Southern and Western markets, and brings long-deferred cash to the shippers. The amount of systematically directed energy, backed by experience and ability, necessary to get out a coal shipment of, say, 10,000,000 bushels (twenty-six and a half bushels to



AT THE LOCK.

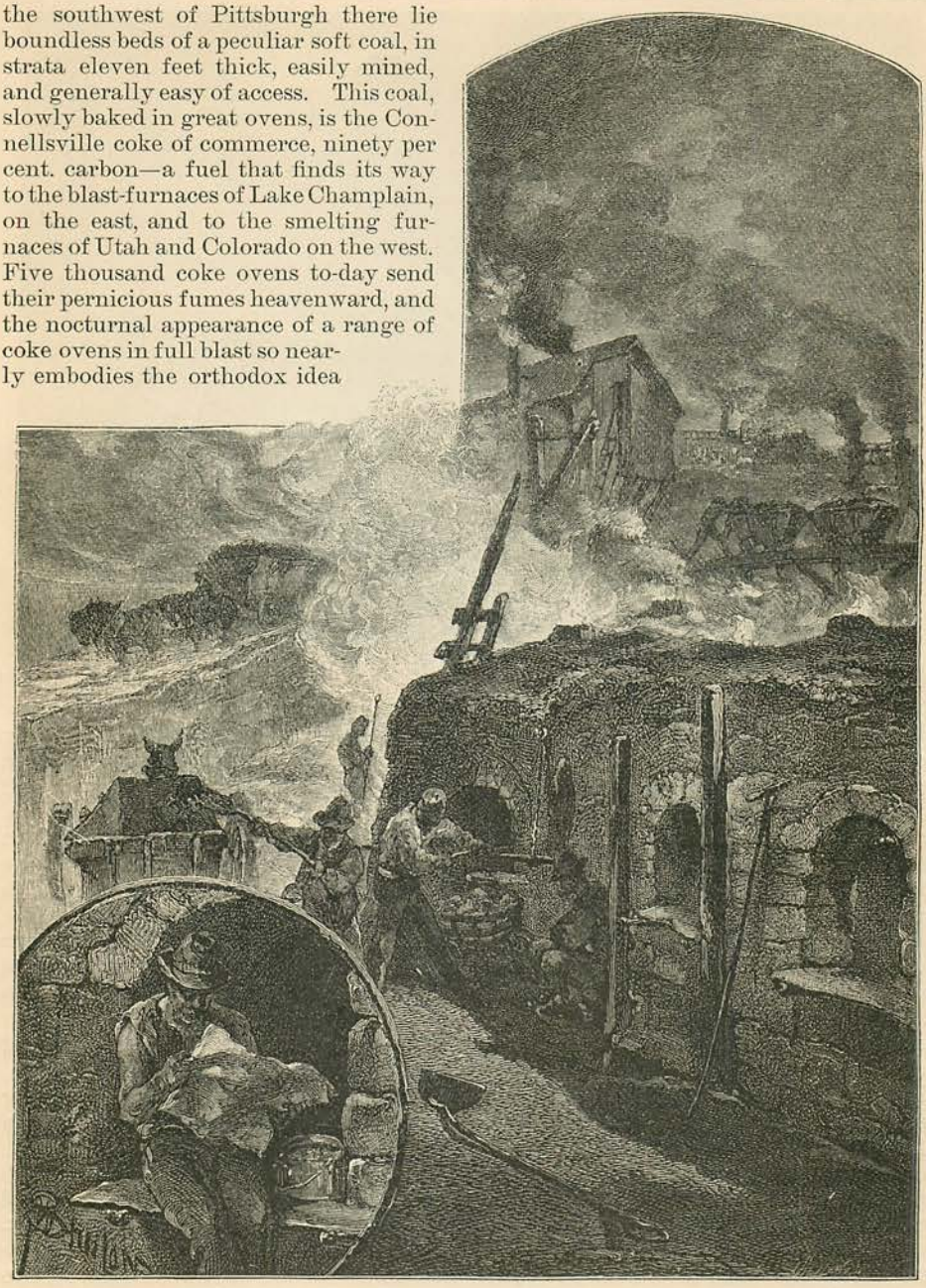
the ton), in thirty-six hours, can hardly be fittingly described. The small, old-fashioned locks of the Monongahela dams are gateways utterly inadequate to the task of passing the fleets of barges and steamers and flats and boats that await their turn. Crews, and boats, and big ropes, and rolling smoke, and puffing steam, and shouting men, are features in a scene only to be witnessed, even in Pittsburgh, when there comes a sudden rise after a long season of low water. But at last the rearmost craft gets through, and joins the emancipated throng of boats that are slowly steaming down the winding Ohio. Each boat has charge of her "tow," the latter consisting of from five to twenty-five big square boats, holding in all from 50,000 to 600,000 bushels of solid carbon.

This coal is mined along the Monongahela Valley and up the valley of jaw-racking Youghiogheny. The coal seams lie in most cases far above the level of the river, and in the older pits the coal has been removed for a distance of three miles from the water's edge. The mouths of these ink-black tunnels show far up the green-walled hill-sides. From these inky spots issue noisy cars that rush down the "incline," bang against the "tipple," and discharge their contents over sloping "screens" into the waiting boat or barge below. And back and forth in these gloomy pits stalk the forlornest of mules, solemn visaged, and wearing a bandage over one eye in a way suggestive of some subterranean difference of opinion. This bandaging is done for the good of the beast, which, unbandaged, will "shy" over to one side and bang his anatomy against the wall, but the drapery does not add to his beauty in the least.

For half a century this undermining of these everlasting hills has been going on, until they rest their strata upon posts or upon thousands of columns of coal in the abandoned mines beneath. An acre of coal, be it understood, means 120,000 bushels of the merchantable article stored in a "seam" four feet eight inches thick. A single tow-boat will take to New Orleans, 2000 miles away, the output of five acres of coal, at a cost for transportation of four cents per bushel. While this work is going on along the rivers mentioned, coal is leaving the Pittsburgh fields by rail at the rate of 180,000,000 bushels per year, and the supply is practically inexhaustible.

From coal it is but a short step to coal's brighter and purer first cousin, coke. To

the southwest of Pittsburgh there lie boundless beds of a peculiar soft coal, in strata eleven feet thick, easily mined, and generally easy of access. This coal, slowly baked in great ovens, is the Connellsville coke of commerce, ninety per cent. carbon—a fuel that finds its way to the blast-furnaces of Lake Champlain, on the east, and to the smelting furnaces of Utah and Colorado on the west. Five thousand coke ovens to-day send their pernicious fumes heavenward, and the nocturnal appearance of a range of coke ovens in full blast so nearly embodies the orthodox idea



COKE-BURNING.

of Satanic scenery that unregenerate Pittsburghers have comparatively few surprises in store after this life.

Before quitting the realms of coal and coke and their river transportation, it might be mentioned that to be considered a coal king, from a Pittsburgh standpoint, one must have at least a million dollars invested in lands and pits, and boats and landings, and mules and what not. One Pittsburgh firm there is with $6,000,000 so invested, another with $4,000,000, half

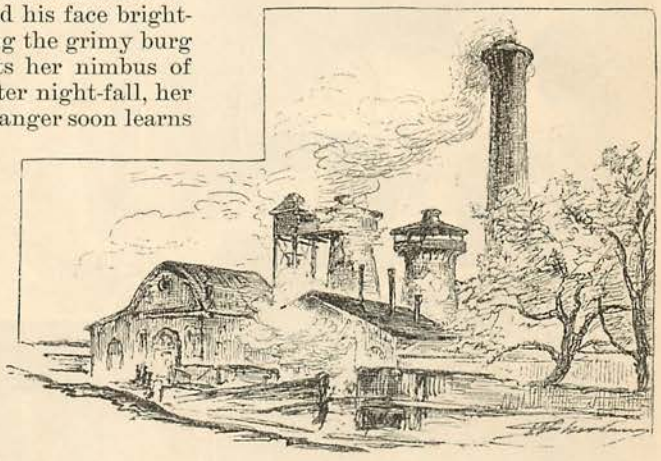
a dozen with $2,000,000, and at least a dozen with $1,000,000. All these solid gentlemen are of the "self-made" order, and not a few rather glory in the fact that they have carried the lamp and swung the pick in their pre-millionaire days.

But it is as the City of Iron that Pittsburgh must go down into remotest futurity. She is the Smoky City only because of her forest of chimneys, whose tongues of flame speak of fires within that are boiling or melting the metal that gives the name to the age in which we live. Your true Pittsburgher glories in his city's name, in her wealth, and, generally speaking, in her dirt. Her densest smoke is incense in his nostrils, and his face brightens when, in approaching the grimy burg of his nativity, he sights her nimbus of carbon from afar, or, after night-fall, her crown of fire, and the stranger soon learns to understand this feeling. The great Iron City's mills and her wonderful furnaces are inspiring to the dullest.

One-twelfth of all the pig-iron produced in the United States is wrested from the glistening ore by the furnaces of Pittsburgh and her immediate vicinity. In the matter of blast-furnaces her record dates back to 1792, when the primitive structure erected by George Anshutz sent its smoke into the clear sky, now darkened by the warm breath of fifteen huge furnaces, capable of producing half a million tons of pig-metal every year from the ores that come from far and near. And to further prepare this metal—the first result of fire upon ore—there are in Pittsburgh thirty-five rolling-mills, wherein eight hundred boiling or puddling furnaces are seething like miniature volcanoes in constant eruption, and whose product is here fashioned into one-quarter of all the rolled iron made in the broad republic.

Ascending into the realm of steel—that perfected, purified form reached through these crucial boilings and meltings and hammerings—Pittsburgh claims, with pardonable pride, sixteen enormous establishments devoted to making all manner of steel, including the finest grades of "tool" steel, until lately supplied by the English manufacturers. In this Pittsburgh excels, and makes two-thirds of all the crucible steel produced in this country.

In these statistics there is, perforce, much dryness, save for the Pittsburgher. But in the creating of steel there is evolved such novel beauty as makes the sooty interior of a Pittsburgh steel-works a feast to the dullest eye. Visit, for instance, some of the largest and most representative establishments. In one of these electricity has recently been introduced to illuminate the works. Here, after night-fall, the livid light of thirty-two electric lamps gives the glare of the furnaces a gory hue. The



A BLAST-FURNACE.

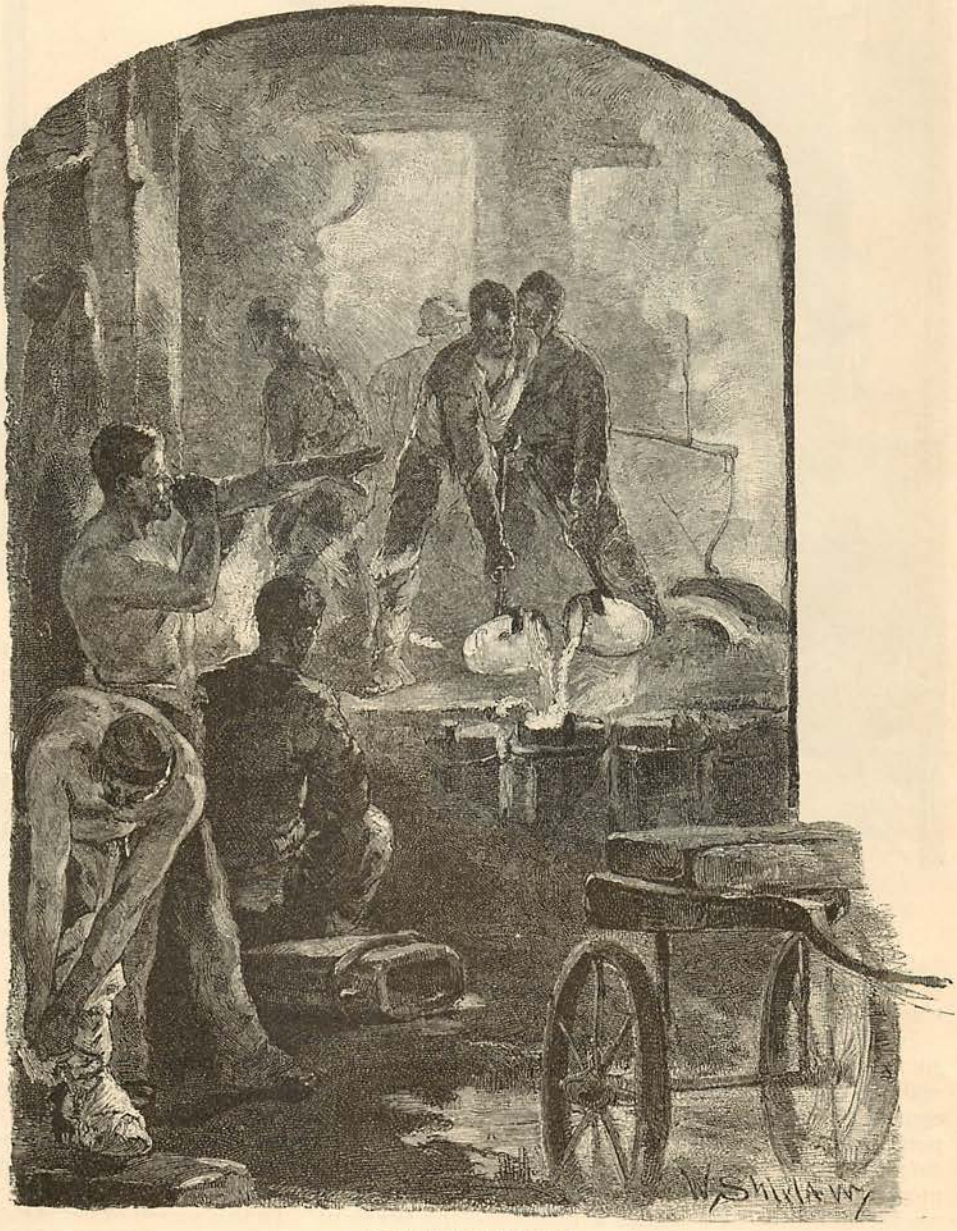
brawny forms of negro puddlers glow in the light of the pools of liquid metal they stir. In this labor they summon from space about the mill deepest shadows that wage a warring conflict with dazzling beams of light. Dante, in conceiving his "Inferno," must have had in mind just such a scene as is witnessed nightly in the crucible department of a Pittsburgh steel-works. Just below the surface of the floor are seen, amid lambent flames of glowing gas, the amphora-like outlines of the crucibles. These, composed of clay and plumbago, withstand a heat of 4000° Fahrenheit, and contain the molten steel that must be poured into waiting open-mouthed moulds. In the men assigned this labor human endurance seems certainly to have reached its limit. The steel-melter, grasping such a pair of tongs as might have been used upon St. Dunstan, steps directly over the fiery pit below,

STEEL-WORKS—PUDDLING.

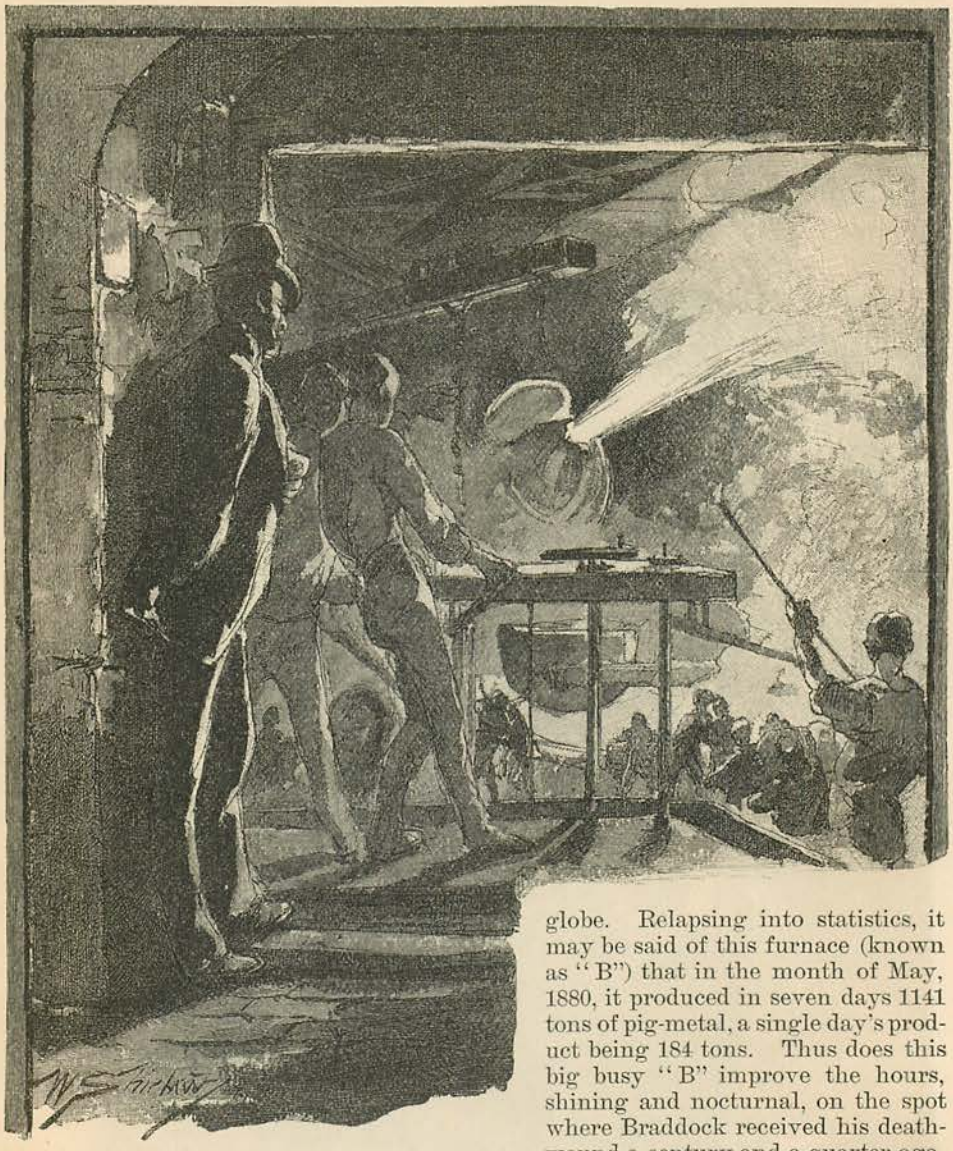
seizes a crucible, and, with apparent ease, draws it, cherry red, to the surface. Man and glowing jar seem part and parcel, and equally impervious to the fearful heat. Salamander muscles come into graceful play as the melter beheads the sealed crucible, which he tilts slowly until its contents are decanted, amid vivid coruscations, into the mould. In raiment the melter from his waist down is an Esquimau, from his waist up a Hottentot, a Zulu, or anything innocent of clothing. Many professional men of liberal education would gladly earn the salary paid the Pittsburgh steel-melter, but the eye-witness of the latter's ordeal will willingly concede that his salary is being eminently well earned.

In other portions of such an establishment is seen the progress of the cast-steel

ingot toward the finished rod, or bar, or sheet. Overhead runs the single rail of a miniature "elevated railway," affording rapid transit by means of pendent carriers for glowing, pulpy balls of steel from furnace to Gothic-framed steam-hammers. Here a touch upon a lever and an earthquake is born, while the Titanic dance of the five-ton hammer-head soon converts the shapeless mass into a solid block of wrought steel. On every hand is seen the wonderful co-operation of ponderous perfected machinery with trained muscle. Particularly is this the case at the smaller hammers, where the hammer-man, in a swinging seat, times the turning of his rod of steel to the quick stroke of the hammer so skillfully that the



EMPTYING THE CRUCIBLE.

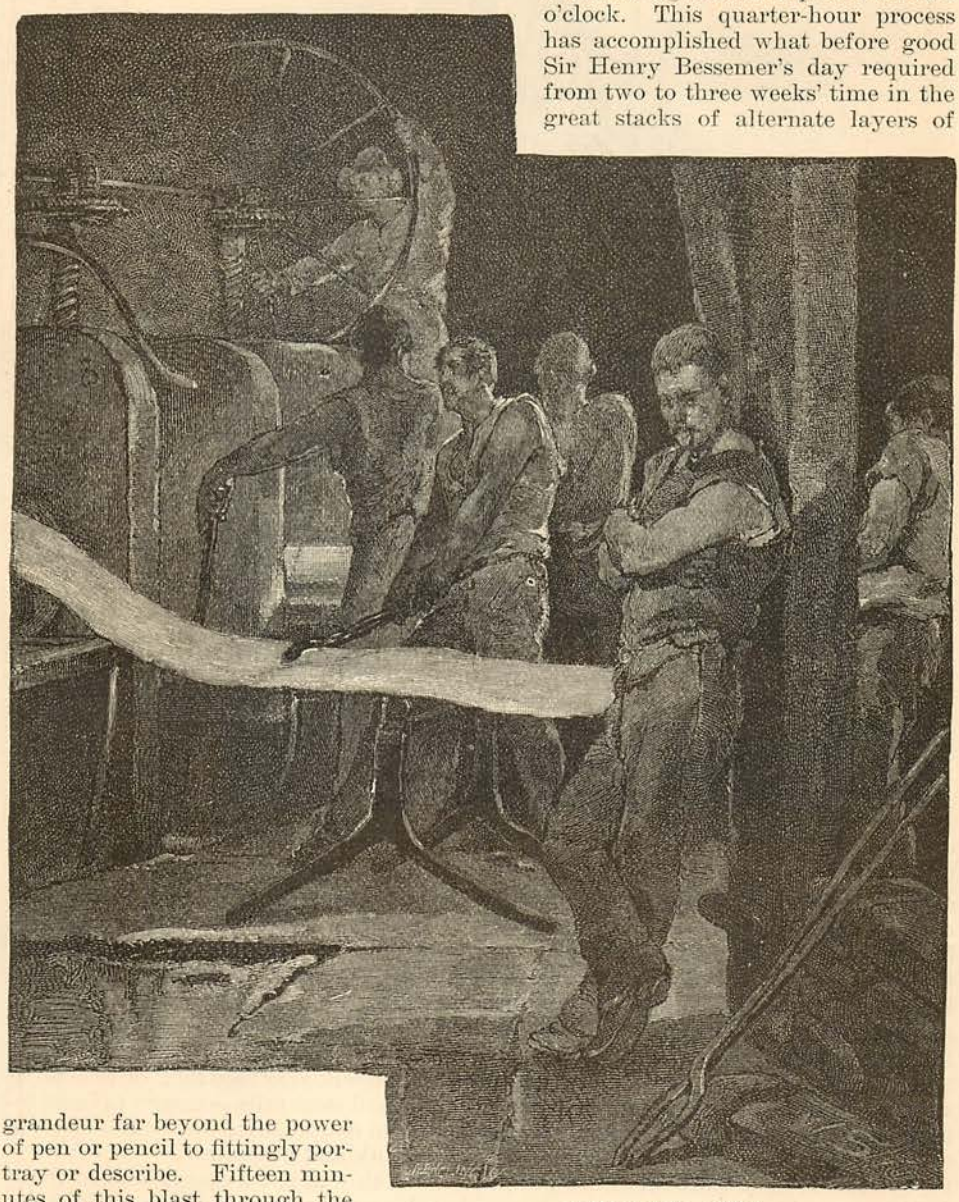


FROM THE PULPIT.

finished surface is smooth and burnished as a mirror, while the four corners are as true in angle as if planed.

In Pittsburgh's coronet of flame there are many brilliants, but her youngest steel-making enterprise holds the position of a central crown diamond. This occupies a portion of the site of General Braddock's defeat in 1755. Here is found one of the most perfect Bessemer "plants" in the world, and here also stands a blast-furnace with a record unequalled in the globe. Relapsing into statistics, it may be said of this furnace (known as "B") that in the month of May, 1880, it produced in seven days 1141 tons of pig-metal, a single day's product being 184 tons. Thus does this big busy "B" improve the hours, shining and nocturnal, on the spot where Braddock received his death-wound a century and a quarter ago. But to the stranger the triumphs of furnace "B" seem possessed of far less interest than the pyrotechnical wonders of the "converting-house." In the bewildering precincts of this place, fire, air, and water are in harness, and do their master—man's—bidding submissively, but in a way that appalls. Air, at a pressure of twenty-five pounds to the square inch, enters an enormous receptacle, the "converter," that, swinging on trunnions, like a great cannon, is pointing skyward. In this poised vessel eight tons of molten iron are seething and bub-

bling, fresh from an adjacent cupola furnace. As the compressed air sweeps through this lakelet of metal, there is a sunburst of roaring flame, of incandescent grandeur far beyond the power of pen or pencil to fittingly portray or describe. Fifteen minutes of this blast through the mass, and the column of flame from the mouth of the "converter" dies out in a gasp like the expiring breath of a terrible giant. Then follows a signaling shout, and from far above the now silent converter there tumbles a fierce rivulet of molten "spiegel" iron, that falls into the red jaws of the swinging furnace. It brings with it just sufficient carbon, etc., to "convert" the mass of metal, and what was eight tons of iron at 7.45 is eight tons of pure steel at 8 o'clock. This quarter-hour process has accomplished what before good Sir Henry Bessemer's day required from two to three weeks' time in the great stacks of alternate layers of bars of iron and of charcoal. Fire and air having so far labored together, the third subservient element is summoned as readily as did Aladdin bring forward the genii of the ring. A boy, far off in a



ROLLING STEEL PLATES.

VIEW CORNER OF FIFTH AVENUE AND WOOD STREET, PITTSBURGH.

corner set apart for bright levers, presses one of these. Water, at a pressure of 300 pounds to the square inch, acting through suitable mechanism, tilts the huge converter to a horizontal position, permitting its "converted" contents to fall into a Brobdingnag ladle swung between a pair of twin cranes. Another shout, and the boy touches another lever in the gallery of levers, irreverently termed the "pulpit." The twin cranes lift the brimming fiery ladle between them as deftly as would a brace of country lasses carry an overfull pail of milk. Hand in hand these giants of iron, whose muscles are of water as dense as quicksilver, convey the eight-ton ladle to the ingot moulds in waiting. Still another pull at the distant lever, and the ladle halts, while a valve below is opened. Lightened by one-fourth, the ladle moves on, and another ingot is cast. And so the work goes on. The converter, meanwhile, had been tilted back, and freshly charged once more. The blast roars again, the glorious shower of scintillating, dazzling brilliancy leaps across the immense building, and the Titanic labor that rests not from Sabbath midnight until Saturday's midnight begins afresh. And while the new-born ingot is yet coral red, other cranes lay hold of it, and a brisk little locomotive winds in among the sparks and flames and din, tooting a warning as it speeds away with the ingots to the "blooming" and "rail" mill. At the latter place the ingot is attacked by ponderous machinery, and passed through successive processes, until it issues from the last pair of rolls a perfect steel rail for the foot of the iron horse.

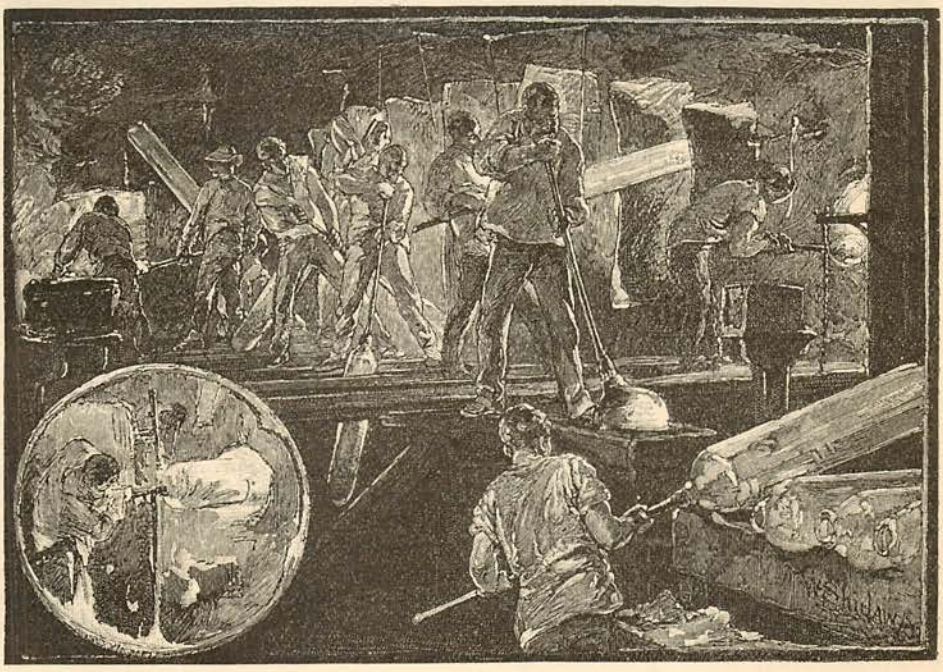
From this rail mill there issued in March of the present year 9538 tons, or 1000 miles of finished steel rails—enough to band together in double lines the distant cities of New York and Pittsburgh.

And this is but a single one of Pittsburgh's wonderful workshops. To fittingly describe her acres of similar industries would fill a large volume. There are squares of great foundries, streets of machine-shops and locomotive-works and engine-making establishments, besides huge shops that send wrought-iron and steel bridges into the world, that furnish

steel steamers for South American rivers, cold rolled shafting for Antipodes, and ploughs for "all creation," and that send iron tanks into the oil regions to hold the surplus of Oildom. There are hundreds of other objects of interest directly relating to the iron industry that must be passed with this mere mention.

Were Pittsburgh not the Iron City, she certainly should be the Coal City, and did she deserve neither appellation, assuredly she would be the Glass City.

Since shrewd old General James O'Hara and Major Isaac Craig "fired up" Pittsburgh's first glass furnace in 1796, this industry has found in that city such congenial soil that to-day ninety glass furnaces silently swell the overhanging cloud of smoke. In these furnaces, exposed to a heat that would appall a Shadrach, there stand eight hundred big, queer "pots," nestling in the clear, bright heat, and holding a syrupy mass that is molten glass. These furnaces, or "glass-houses," are bulbous pyramids of brick, so encompassed with frame buildings as to their lower three-fourths as to closely resemble from a distance great square inkstands. Inwardly they glow with the fervor shown by their neighbors the iron furnaces. Outwardly they are dusty with sand and lime, and suggestive of a country grist-mill. The racket of wheels, however, is conspicuous by its absence. Nor is there puff of escaping steam, or hurrying tread of workmen; only the great upward roll of deep black smoke from the mouth of the giant ink-bottle, and the glare of the round, staring, fiery eyes of the furnace. Internally this "glass-house" is almost as full of weird beauty as is the steel-melters' domain. In and about the glass pots and furnaces of Pittsburgh there labors an army of five thousand men and boys. These, as to the former, are strong of muscle, and stronger of lung; as to the latter, duly observant of the adage referring to throwing stones in glass houses, and deft in the handling of fragile things. A glass-blower's daily duties call for an amount of lung duty that would appall a Levy, or disgust an Arbuckle. In this phase of glass-making, *i. e.*, the "blowing" of window and other glass, there has been little or no advance in half a century. Every other avenue in the industry has been



WINDOW-GLASS BLOWING.

OIL-REFINERY.

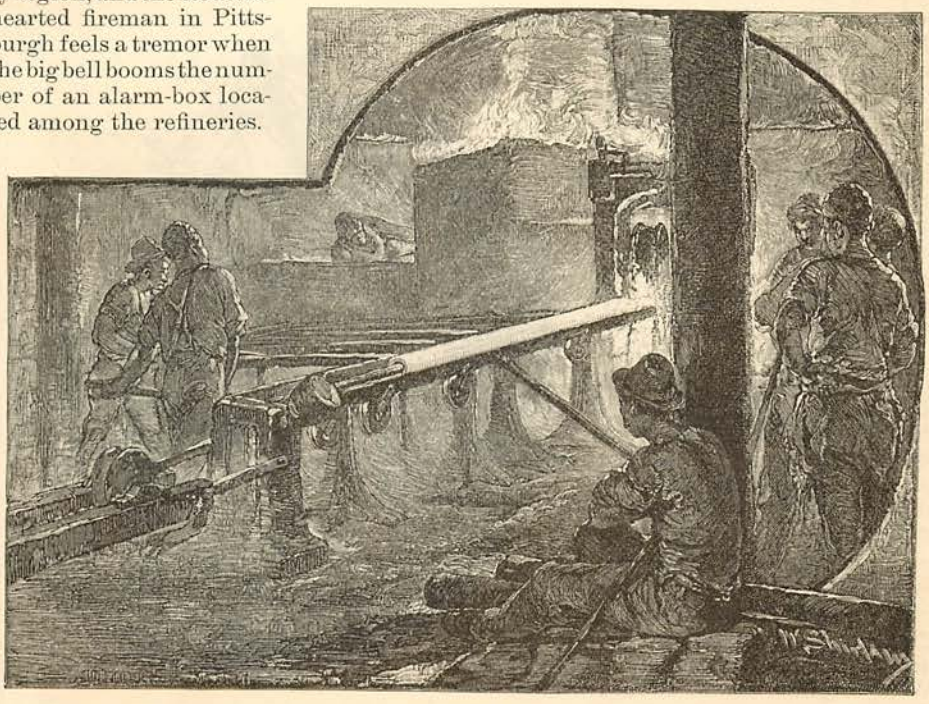
made wider and smoother by the inventor and the skilled mechanic, but the window-glass factory of 1880 is a counterpart of the factory of 1825. A straight blow-pipe and a bench are the workman's appliances. With the former he dips from the "pot" a lump of sticky melted glass, and, if he be a notably good blower, will in five minutes convert that forty-pound lump of cherry-red shapeless stickiness into a splendid cylinder six feet long and fifteen inches in diameter—a cylinder whose polished crystal walls are uniformly thin in every part to the minutest fraction of an inch; so that when this cylinder is split and flattened it will be a mammoth plate of "blown" glass, measuring forty-five by seventy-six or eighty inches. The blower at work challenges admiration, as his tremendous lungs force air into the growing bubble at the end of his pipe. Its cooling walls grow thinner, and yet the swelling air-cell within is never permitted to burst its fragile prison. As the mass takes on a cylindrical shape, the man calls to his aid the force of gravity, and the pipe becomes a pendulum, with the growing cylinder for a "bob." And so, by skillful twirling, constant blowing, and laborious but graceful swinging, the perfect cylinder appears, while the gazer is puzzled which to most admire, cause or effect, workman or work. The finished cylinder is now split from end to end by the touch of a red-hot bar, and with others is borne to a queer furnace, whose interior is fitted with a revolving floor like a railway "turn-table." On this are laid the cylinders, and slowly they are borne through positive and comparative to superlative degrees of heat. The fracture being uppermost, the softening cylinder of its own weight parts along the upper side. A workman, with a bit of soft wood on the end of a rod, then operates on the demoralized cylinder as a laundress would work in ironing a big cuff. The block, pushed over the uneven surface, flattens the cylinder upon its stone bed, where it lies, prone and pretty, like a huge sheet of clear gelatine. A turn of the furnace floor, and another cylinder comes within reach of workman and flattener, while the same movement carries the finished sheet to a cooler place, eventually to find its way to the cutter, the packer, and the distant sash of the "consumer."

In the converting of molten glass into table-ware, "bar-ware," bottles, lamps, chimneys, and a thousand other objects, improved machinery is springing into existence, each device greeted with more or less disfavor by the workmen. But as yet no inventor has succeeded in displacing the big-armed, deep-chested "blower." He defies machinery, lives to a good old age, and surely earns his twenty-five and fifty dollars per week. The latter figure is attained by the few men who can "blow" a sheet of the dimensions already given.

At Pittsburgh is made not only lamp and chimney, but the cheap and wonderful fluid that feeds the wicks. The first two are turned out in myriads in her glass-works, and the latter necessity pours from her vast odoriferous refineries. To the latter there flows a steady stream of crude oil, 12,000 barrels per day, from the wells of the "regions," twenty-five miles away as the crow flies. A round dozen there are of these refineries. They are to the nose what "tuning-time" in a grand orchestra is to the ear. Every shade or semi-tone of abominable smell, from the overwhelming stench of "residuum" and "refuse" to the pungent and more tolerable odor of high-test refined petroleum, is born and bred into lusty maturity at the Pittsburgh refinery. These rather unsightly affairs are located in a portion of the city set apart for their occupancy; and in this portion of the City of Smoke even the most persistent sight-seer lingers but long enough to absorb the whole gamut of smells that issue from "tank" and "still" and "agitator." It is also a region of great iron tanks, that seem sweet morsels for the electric destroyer. And here a stroke of lightning means death and destruction. The soil is saturated with oil in this unlovely region, and the stoutest-hearted fireman in Pittsburgh feels a tremor when the big bell booms the number of an alarm-box located among the refineries.

The oil industry has lent a powerful hand to the iron industry of Pittsburgh. Each well in the regions of petroleum must be fitted with at least two thousand feet of iron pipes, great and small, and every barrel produced ultimately enters an iron tank. The mills of Pittsburgh supply both. An order for fifty or one hundred miles of pipe does not worry a Pittsburgh pipe-maker in the least; and among the sights to see there is the working of ponderous machinery that draw a long strip of white-hot iron from the furnace mouth and converts it into a hollow, perfect pipe in the twinkling of an eye, and with the noise also of a near stroke of thunder, and a play of fire-works as though a meteor had exploded. And as these lines are written Pittsburgh men and machinery are working night and day upon tremendous sheet-iron oil tanks, to hold 30,000 barrels each, that are to store away 2,000,000 barrels of "dollar crude" for a single company. Then there are engines and boilers and pumps to be built for the oil men. These are examples only of the great industrial activity which has made the city of Pittsburgh the Sheffield of America.

Pittsburgh rivers have been compared



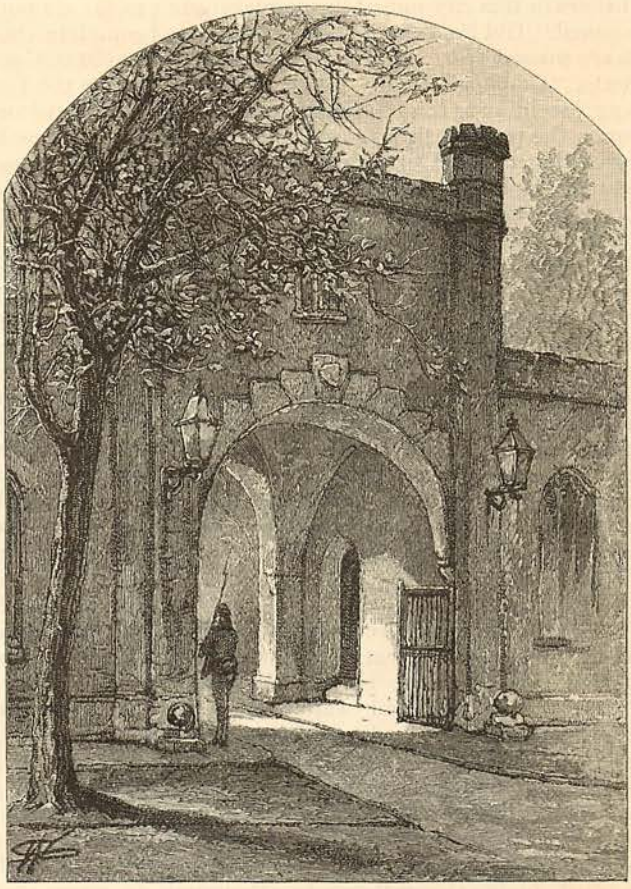
PIPE-MAKING.

STEPHEN C. FOSTER.

in their tripartite nature to a big irregular Y. But no such simile would hold good in considering her appearance on a railway map. Given an evil-minded boy, a small round stone, and a plate-glass window, and the natural result would be a counterpart of such a map. The hole in the pane would, big or little, represent the City of Smoke, and each diverging crack would stand for a railway that is loading or unloading its traffic within her gates. At Union Dépôt—the building recently erected over the ashes left by the terrible railroad riots of three summers ago—the following lines come to a focus: the main line of the perfectly appointed Pennsylvania Central; the Pittsburgh, Fort Wayne, and Chicago, leading westwardly to the city by the lake; the queerly named "Pan-Handle," or Pittsburgh, Cincinnati, and St. Louis, leading across the "handle" of West Virginia, and so toward the setting sun and the city of music festivals and of much pork; the Alleghany Valley, winding north along the beautiful river, and taking passengers "through by daylight" to Buffalo; the Pittsburgh, Virginia, and Charleston, young and growing southwardly up the Monongahela; the Southwest Pennsylvania, leaving the main line of the Pennsylvania at Greensburg, and leading southwardly toward the border of the State; the Cleveland and Pittsburgh, leading west through Northern Ohio to the Forest City; and the Erie and Pittsburgh, leading north to Erie at the remote northwestern corner of the commonwealth—eight busy roads that bring into and take out of Union Dépôt 144 passenger trains daily. At another dépôt is the terminus of the Pittsburgh division of the Baltimore and Ohio road, joining the main line at Cumberland, Maryland, by way of the Monongahela and Youghiogheny valleys. At the base of Mount Washington, or Coal Hill, three more dépôts are found. Chief among this trio is the Pittsburgh and Lake Erie, leading west along the south bank of the Ohio River, and into the State of that name, a "missing link" recently found, and none too soon, as its construction gave Pittsburgh

GRAVE OF STEPHEN C. FOSTER.

independence. Then comes a narrow-gauge with bright hopes, the Pittsburgh Southern, leading southwardly. The Castle Shannon, narrow-gauge, brief but busy, completes the list in this quarter. In Allegheny is the terminus of the West Penn road, tributary to the great Pennsylvania Central, and leading up the Alleghany Valley. The Pittsburgh and Western completes the list; it is narrow-gauge and flourishing, with very bright prospects. In all, fourteen busy railroads—fourteen arms that reach far and wide, fattening Pittsburgh, and growing the while in length, value, and importance.



THE ARSENAL.

Of Pittsburghers it may be said that their industry is only equalled by their demand for daily news, warm from the wires and press. To gratify this worthy craving they support more newspapers, daily and weekly, than are printed in any city of its population in the country. Ten daily papers, six morning and four evening, appear upon her streets every twenty-four hours, and their combined circulation is something wonderful in its way.

This epitome of the Smoky City's attributes would be in a measure incomplete without a reference to one quiet spot in Allegheny Cemetery, and without a passing tribute to the memory of the Pittsburgher whose body reposes in this green and shaded nook in the city of the dead. Far-reaching as are the industries of the busy city that surrounds the spot with endless flame and ceaseless turmoil, and widespread as is the fame of her handiwork, yet here slumbers one whose brief life had a subtler potency, and whose melodies won for their young composer a world-wide fame.

Stephen C. Foster was born, in what is now a part of Pittsburgh, July 4, 1826, and died in New York January 13, 1864, at the early age of thirty-seven years. The popularity attained by his compositions may best be judged by noting the following figures. Of "Old Folks at Home" there have been sold 300,000 copies; "My Old Kentucky Home," 200,000 copies; "Willie, we have missed you," 150,000; "Massa's in the cold, cold ground," and "Ellen Bayne," 100,000 each; "Old Dog Tray" —in six months—75,000 copies. Of "Old Uncle Ned," "Oh! Susannah," and other equally popular works by this young Pittsburgher it is difficult to give the number printed, as Foster did not copyright them. The brain that conceived and the hand that wrote these melodies have long been crumbling to dust, but their work is found in thousands of American and European homes. There is today not a music house in the country that does not regularly order of Foster's pub-

lishers in this city one of the compositions named, "Old Folks at Home," "Willie, we have missed you," and the beautiful quartette, "Come where my love lies dreaming," seeming to have the most lasting hold upon the popular fancy. All these songs were born under practical Pittsburgh's canopy of smoke, and in the very heart of her roar and tumult.

Near the beautiful cemetery where lies the dead composer is noted the arched portals of the Allegheny Arsenal, flanked with flag-stones worn into hollows by the tread of succeeding generations of sentries. Within the low wall great Columbiads bask in pleasant sunshine, and pyramids of solid shot show their grim outlines among apple blossoms and neat flower beds. From these gates there issued in the month of December, 1860, a shipment of cannon in compliance with an order from the then Secretary of War, Floyd.

A few minutes' drive from the arsenal there looms up a great, many-windowed building at the edge of the Alleghany. This, during the civil war, was to the Union what the Tredegar Iron-Works were to the Confederacy. The Fort Pitt Cannon Foundry—now no more as such—cast guns that spoke victory on Lake Erie in 1812, that a generation later thundered before the gates of Mexico, and furnished, during the civil war, two thousand cannon, from the twenty-inch Columbiad to the six-pounder or field-piece. And to complete the grim list, these works cast 10,000,000 pounds of shot and shell between the years 1861 and 1864.

The visitor who would most enjoy the City of Smoke must keep his eyes open. And if he uses well his eyes he will note a hundred objects of interest that are beyond the scope of this article even to consider: great cotton mills that are humming hives of whirling spindles; a firmament of lights flashing on the swift water of three rivers; great bridges of iron and wood thrown across these storied streams. Other streams there are whose currents and eddies are humanity. They are the streets of the city on some pleasant Saturday evening. An army of ten thousand men, whose individual earnings vary from five dollars to five hundred dollars per week, is abroad in the narrow gas-lit thoroughfare. They are seeking amusement, and, generally speaking, find it. In the concert saloon, the billiard hall, the bowling-alley or drinking saloon, are found these workers in iron and steel and glass. They are supremely content, orderly, generally sober and thrifty. They form one of the sights of the city.

In fact, to the intelligent observer, Pittsburgh is a great kaleidoscope, showing new attractions at every turn. The place is a big, many-leaved volume of such scope that a tithe only of its contents can be given in these glances at some of its most salient features.

SATURDAY EVENING AT THE VARIETY.