charged until it has gradually cooled. Practice plays an important part in the management of the firing, as the temperature can be judged of only after prolonged experience. Next to the fuel, the greatest expense is the cementing boxes, which are often serviceable only for a single operation.

AMERICAN INSTITUTE OF ARCHITECTS.—FIRE-PROOF CONSTRUCTION.

(Concluded from page 114.)

We conclude our review of Mr. Wight's paper on "Fire-proof Construction," published by the Committee on Library and Publications, a portion of which was given in our last issue.

"The objections to the brick arches are, that their great weight requires heavier beams than would otherwise be used, and that the form of their soffits is not beautiful, for they have the appearance of a long succession of little wagon vaults, requiring a resort to the doubtful expedient of furring the ceiling with iron lath. I think it might be objected to the French system of floors, that the expense would be too great, plaster being a dear article with us in comparison with its price in France, while our own cement has not the requisite properties to enable it to be substituted, besides being almost equally costly. The stone slabs of Mr. Eidlitz, are the only rigid material thus far used successfully with iron beams, and could be used to better advantage if laid *on* the beams rather than resting upon their lower flanges, as is done in the American Exchange Bank. They are doubtless the handsomest material that can be used for this purpose, but are open to the objection of being heavy and expensive—where expense is a question, and utility only is sought—requiring heavy beams and calling for elaborate cutting on the under side. It will be pertinent to our inquiry, therefore, to ask if there are any other rigid materials adaptable to this purpose, and possessing the desired quality of lightness and cheapness. Cast-iron plates may be used for flooring in two ways; first, when deafening and finished floor covering are required; second, when neither is required, as in manufacturing buildings, wherein a reasonably smooth flooring is required, and a few planks, laid where workmen habitually stand, will answer the purpose of non-conductors of heat. Experiment must determine the minimum quantity of iron (in proportion to the strength required), to be used in the floor plates. In obtaining the proper form for strength, and to insure true castings, the bottoms of the plates will naturally be covered with raised flanges, except at the edges, where they bear on the beams. These flanges or ribs may assume a decorative form, either a plain diaper or larger pattern to form a complete design for the ceiling when many of them are combined. By a judicious arrangement of the flanges the actual thickness of the iron may be reduced to three eighths or a quarter of an inch. When deafening is required, strengthening flanges may also be cast on top of the plates, and consequently the beams can be placed at wide intervals. The flanges on the top will then serve to keep the concrete, used for deafening, in its place, and avoid the cracks which might occur in a large surface of cement. The deafening may be of any thickness required, and will serve as a bed for the floor tiles. All that is then required for the under side is judicious decoration of the beams and floor plates. When deafening is not required, as in manufacturing buildings, the tops should be smooth. It has been objected that the floors of iron would be too cold for the feet of workmen. But it would be very easy to put down platforms of wood where the men habitually stand. Besides, when the lower story is heated, the stratum of hot air immediately under the ceiling would naturally keep the floor at a higher temperature than that of the air in the room, and the greater conductibility of the iron would rather tend to warm the feet of those who stand upon it. The plates, in all cases, being bolted to the flanges of the beams, would serve as bridging for the floors.

"Where decorative effect is desired, stone with marble panels is recommended. Our native quarries now afford stone light enough in color to set at rest all objections that may be made to its use on the score of light. But if those should hold good the material might be marble paneled with marble, the former white, and the latter colored. Obviously the cheapest material for wall covering in natural materials would be slabs of white marble. Let us then make some comparison of figures, and see what can be done with this material. Iron lath, of the form generally used, cost $1·25 per foot. Three-coat plastering costs nine cents per foot. A responsible dealer in marble informs me that he will put up inch slabs of Italian veined or Vermont marble for one dollar and a half per foot. Which, then, would you choose, polished marble at $1·50, or plaster, as good in appearance as that in any tenement house, at $1·34? This is a fair comparison for exterior walls or ceilings. Italian marble slabs can be procured in any quantity, from eight to nine feet long and three feet wide. In a room fifteen feet high, allowing four feet for wainscot and two feet for cornice, you may line your walls with one length of marble.

What treatment do we now give to doors? We build brick jambs with wooden or iron lintels, as if we would trim the doors with wood. We then put up cast-iron jams, rivet to their edges pilasters or architraves of the same material, and then surmount the whole, perhaps, with a cast-iron cornice and pediment. Some have gone so far as to inlay the panels of the iron work with bits of colored marble, thus heightening the effect of the already rough finish of the iron, a roughness which the best founderymen have been unable to prevent, and which it would cost untold money to reduce down to the smoothness of ordinary work in pine wood. In one of our most pretentious houses on Fifth Avenue, they are now putting up jams, architraves and cornices made of sawn slabs of marble or marble boards, in the same manner in which wood and iron have been used. And what does all this amount to? In the category of shams, there is no equal to this monstrous succession. You have imitated a Greek or Roman architrave and cornice by a wooden sham, your wooden sham has been imitated by an iron sham, your iron sham has been imitated by a marble sham. And what is the result? You have kept the form all along; you have come back to the original material by a succession of imitations, and have at last a shell without meat—marble carpentry instead of marble architecture. In all the stages of your attempt to revive the old forms, you have sham imitation of shams down to the final achievement of your carpenter in marble.

"In erecting modern fire-proof buildings, especially in so far as iron work is concerned, all the conditions imposed upon the architect are different from those which existed in past ages. The same may be said of the use of iron in any building. Subserviency to style, when the material used is not such as was the controlling element of that style, is destructive to all good art; for there can be no truly artistic effect except that which is produced by the best use of material, and its decoration in best accordance with its nature. If the use of iron is ever to lead to the erection of buildings worthy of being called works of art, such a result must be attained only by the recognition of this principle.

"The best thinkers have doubted whether there can be any such thing as architecture in iron, assuming of course, that to be called architecture, the material must be constructively used; and there is good reason for these doubts. An iron building does not always require the force of gravity to maintain the cohesion of its parts; it possesses such properties that it may be swung in the air or balanced on a single point, if it is necessary so to do. It is a machine admitting of as little decoration as a steam engine or a printing press. If iron alone were used for buildings, constructive necessity and economy combined, might lead us to build houses like steam boilers or water tanks."

In a foot note Mr. Wight states that an inspection of Harper & Brothers' building, since writing this paper, has convinced him that the principle of division into horizontal compartments has been carried out more thoroughly in it than in any other building of the kind. There are no openings through the floors. It contains neither interior stairs nor hoistways—both are on the exterior. The stairs are in an isolated tower approached by bridges, and the hoistway is without inclosure. This arrangement is, however, extremely inconvenient.

In conclusion, Mr. Wight urges architects to avoid the use of iron whenever possible so to do; but if it must be employed, to use it rationally and constructively, without attempt to imitate stylos not in harmony with its constructive properties.

THE EARLY AMERICAN IMPROVEMENTS IN PRINTING PRESSES.

Few men have borne a more important relation to the wonderful progress made in this country, during the present century, in the improvement of printing presses, than Phineas Dow, of this city. Although now nearly ninety years of age, his mental and physical faculties are in a remarkably good state of preservation, and he affords a new illustration of the trite maxim that men are more apt to rust away, in idleness, than to wear out in good service. His career also illustrates not only mechanical genius of a high order, but extraordinary versatility and the happy faculty of turning a cunning hand to varied employments.

Phineas Dow was born in November, 1780, in Londonderry, a town in New Hampshire, named after the famous Irish locality which bears the same cognomen. His parents were both natives of this country, and he is, therefore, by descent, as well as by his own long-continued residence in the United States, truly "to the manor born." When but about a year old, his father died, and this misfortune imposed upon him the necessity of earning his bread by the sweat of his brow, from a very early period of his life. The surviving family consisted of his mother (who lived to reach a green old age), two sisters, and himself; and after various removals, from Londonderry to Wyndham, from Wyndham to Litchfield, and from Litchfield to New Boston (N. H.), young Dow, who, from the time he was six or seven years of age, was employed on such farm-work as best suited his strength and capacity, was apprenticed, in his fifteenth year, to a carpenter in New Boston, with whom he remained, working steadily and skillfully during the ensuing three years, under the impression that his future life would be devoted to the trade of his early adoption. It so happened, however, that the talent he displayed in wood-work attracted the notice and commendation of a friend, through whose influence he secured, at the age of eighteen, a more lucrative situation as a coach maker, at Salem, Mass., where he remained until he was about twenty-three years of age, employed mainly in making the bodies of the chaises, which were the fashionable vehicles of that period. About 1803 he went to Boston, where, after working some time as a journeyman coach-maker, he became the proprietor of a coach-making establishment, which he successfully conducted, until the war of 1812 prostrated that branch of industry, and compelled him to seek remunerative employment in a new field. His skill in wood-work well qualified him for the task he then assumed, of making the elaborate cabinet carving which was then required for the decoration of the furniture used by the wealthier classes, and this business he continued up to the time the war closed. During this period, he was the intimate acquaintance of Daniel Treadwell, who, as his next-door neighbor, was prosecuting his trade as a silversmith, under serious disadvantages, occasioned by the pressure and distress arising from the war. Dow and Treadwell, in conjunction, employed their leisure moments in efforts to construct a new machine for making iron screws, for which a great demand then existed, on account of the gradual consumption of the old supplies which had been received exclusively from England. Just as they were about perfecting their device, the sudden termination of the war overwhelmed their enterprise in the ruin which attended many similar efforts to supplant foreign products, for they were unable to compete with the British manufacturers, whose fabrics deluged the American market as soon as it was re-opened. Baffled in this direction, Mr. Dow, combining the knowledge he had acquired in their experiments with his previous acquaintance with various branches of mechanics, started a machine shop, where machinery of all kinds was repaired or manufactured, and it was as a machinist that he first established the connection with printing presses which has continued during the last fifty years of wondrous progress. Mr. Dow paid special attention, in his machine shop, to fire engines, and displayed such skill that he received all the patronage in the gift of the city of Boston, together with the compliment of the Mayor that his improvements were worth far more than the amount of his bills, and the appointment of official inspector of all the fire and steam engines in the city. While he was repairing, making, and improving fire engines, he was equally ready to execute orders for other descriptions of machinery, and, as it fell within his province to repair old printing presses, his establishment became the head-quarters, in Boston, of this business. For a time his efforts were confined mainly to various forms of the old-fashioned hand-press, and he also made and sold some ten or twelve hand-presses, called the Dow press, which embraced new devices, invented by one of his workmen, named Cooley (a half-breed Indian), as well as improvements suggested by himself. But not long after the close of the war, his friend Treadwell returned from a trip to England, with a firm conviction that the time had arrived for the construction of more rapid printing machinery than the old hand-press. His attention had probably been attracted to the improvements which were then still novelties in England, for the earnest practical efforts to construct a power type printing press, of any description, were made in the early part of the present century, and the London *Times*, of Nov. 28, 1814, truly announced that that journal was the first newspaper printed by steam-impelled machinery. From the plans and descriptions furnished by Mr. Treadwell, Phineas Dow made first a model, and, subsequently, a series of working power-presses, which, so far as is known, were the first ever made or used in the United States; and, for this service alone, he deserves an honorable niche in the history of American printing. We can scarcely realize that Mr. Treadwell was so far in advance of his time, that, after his power-press was completed, he could find no purchasers—no newspaper proprietor ready to venture upon the doubtful experiment of printing more than a few hundred copies per hour—no book printer anxious to secure such facilities!

Undaunted by this difficulty, Treadwell commenced the printing business himself, running his presses by horse power, but as soon as he was fairly at work issuing, with unprecedented rapidity, various popular books, his establishment was burned to the ground. The origin of the fire is not positively known, but the hand-pressmen of that day were intensely hostile to the new-fangled labor-saving invention, which threatened, in their judgment, the annihilation of their craft, and it was generally believed that this feeling had finally culminated in the destruction of the first power-press printing establishment of this country by an act of incendiarism. Thus the dawn of a great mechanical revolution was hailed by the indifference of employing printers and the deadly hostility of pressmen.

Mr. Treadwell, still undaunted, had other presses made, and for greater security, as well as to gain less expensive power, he established another printing office on the mill-dam, in or near Boston, where his presses were run by water-power.

Mr. Dow subsequently made for Mr. Isaac Ashmead, of this city, two of the Treadwell presses; and Mr. Ashmead was so well pleased with their operation that he had six other presses of the same pattern made by other machinists.

Mr. Treadwell's inventive genius was not confined to power presses or screw machines. He claims to have been the originator of the Armstrong gun, and Mr. Dow still remembers that, in 1814, Treadwell asked him what he thought of making a gun of "staves" of iron, and binding it together with iron hoops. Treadwell also invented, some years ago, a type-setting and type-distributing machine, as well as wrought nail and inking machines, which were made by Mr. Dow. Information in regard to the type-setting machine was surreptitiously given by one of Mr. Dow's blacksmiths to a man who went to England and had it patented there so promptly, that the real inventor, Treadwell, who had been tardy in his application, was denied a patent in this country.

While the Treadwell presses were being manufactured, Mr. Dow had in his employment, as journeymen, two men, who have since won imperishable renown, as well as a more substantial reward, for their useful improvements in printing presses—Seth and Isaac Adams—the inventors and patentees of the Adams press. They were originally cabinet carvers, and they were useful in the machine shop in making patterns, as well as in various other affairs requiring superior skill. Isaac Adams possessed great fertility of invention, while his brother Seth was a shrewd business manager; and this combination of talents secured their joint success in realizing large profits from the Adams press. Prior to their famous invention, and while they were still working for Mr. Dow, they invented a power press which was also called the Adams press, and which attracted considerable attention. Mr. Dow made a number of these machines, and among other sales, he effected several in Philadelphia, including one to Samuel Coates Atkinson, of the *Post and Casket*; one to Joseph R. Chandler, proprietor of the *United States Gazette;* and one to Jasper Harding, proprietor of the *Inquirer;* and while he was putting up these three presses, he effected sales to other Philadelphia printers and publishers.

Mr. Tufts, who subsequently invented and manufactured several presses of novel construction, was also one of the journeymen engaged in Mr. Dow's machine shop at the period when these important improvements were gradually being perfected.

While the journeymen of the establishment were busily engaged in preparing for the transition from hand to power labor, the inventive genius of the proprietor was not idle. In addition to his constant efforts to put into working order the models of other men, he labored steadily during his leisure moments, in conjunction with Mr. Sawyer, a cabinet maker, to perfect a power press that would make a simultaneous impression on both sides of the sheet; and after spending several thousand dollars and much time in completing a machine of this description, his efforts were apparently about to be rewarded with success, when a destructive fire consumed his whole establishment, and as it was totally uninsured, all the fruits of years of hard labor were suddenly swept away.

Immediate necessities compelled Mr. Dow to turn his energies in a new direction. For a time he was in doubt how to make his new start in life, and while he was gaining a temporary support at his former trade of cabinet carver, he made a piano which, after more than thirty years of hard service, is still in good condition, and it affords one of many existing proofs of the versatility of his mechanical genius.

After spending several years subsequent to the destruction of his machine shop in several places, Mr. Dow permanently established himself, in 1841 or 1842, partly at the solicitation of Mr. Isaac Ashmead, as a machinist, in Philadelphia, his shop being located in a part of the building now occupied exclusively by King & Baird's printing office. His superior knowledge of the machinery connected with power presses, which were then rapidly coming into general use, gave him, for a time, a monopoly of this branch of his business in Philadelphia, and made him "the doctor" of all the sick power presses of the city. After remaining in the King & Baird building for five or six years, he removed his establishment near Sixth and Arch streets, where, up to a very recent period, he continued his active business career, astonishing his numerous acquaintances by the unremitting intellectual and physical vigor displayed despite his near approach to the green old age of fourscore and ten.—*Printers' Circular.*

Dyeing and Printing.

At the present time, sumac is much used in dyeing and printing, in order to cause other dyes to take better on the fabrics or fibers of materials to be dyed or printed. According to an invention lately patented by Mr. J. L. Norton, of Bell Sauvage Yard, Ludgate Hill (whose name is well known in connection with the Abyssinian tube well), an extract of the bark of the hemlock tree is substituted for the sumac, the desired result being thus more effectually and economically attained. The following are the details of the methods by which Mr. Norton operates in order to obtain a number of different colors:

To dye 20 lbs. weight of cotton a magenta color, take 3 lbs. of Miller's extract of hemlock bark as imported from Canada, and boil it with 20 gallons of water, and then lay the cotton in the liquid for a night. In the morning, add 3 pints of red cotton spirits diluted with 20 gallons of warm water, and work afterward the cotton in this for 50 minutes. Then bring it out and wash twice with cold water, and afterward with warm water. Then take 20 gallons of fresh water heated to 160° and put two pints roseine solution into it, and work the cotton in this liquor till the color is full enough. Wash the cotton and dry it.

To dye a primula color, proceed as before, only using a solution of Hoffman's violet instead of roseine, and work at the same temperature (160°). A bluer tint may be obtained by increasing the heat, or a redder by lessening it.

To dye a lavender color, take of extract of hemlock bark 1½ lbs. to 20 lbs. of cotton, and work the cotton in the extract diluted with 20 gallons of water for half an hour. Rinse and wash in cold water, and then in warm. Take of red cotton spirits 1 pint, diluted with 20 gallons of warm water, and work the cotton in it for 15 minutes, then wash in two warm waters. Afterward work the material in a bath consisting of 1 pint of Nicholson's No. 2 blue solution, with 1 gill of nitric acid at about 100°. Wash the cotton and dry it.

To dye a green color, prepare with 4 lbs. of extract of hemlock bark mixed with 20 gallons of water. Lay the cotton in this for 1½ hour at a boiling heat; then prepare a bath with 20 gallons of cold water and 2½ pints of double muriate of tin, and work in this half an hour. Wring the cotton out and wash off well to kill the strong acid. Afterward take 20 gallons of water at a temperature of 170° or 180°, and put into it 1 pint, or nearly so, of iodine green paste diluted with 1 gill of methylated spirits; if a yellow shade is required add a little picric acid. Work the materials in this for about 20 minutes, then wash and dry it.

To dye a gold color, prepare with ½ lb. of extract and 1 lb. turmeric dissolved in 2 gallons of water. Work at a heat of about 90°, then cool down and add ¼ gill nitric acid. If the color is not red enough, add a little annatto; if not deep enough, repeat until the shade required is obtained.

To dye black, take 4½ lbs. of extract of hemlock bark and boil it with 20 gallons of water, and then lay the cotton in this liquid for a night. In the morning take it out and put it into a cold lime water bath of 4°, and work in this for 10 minutes. Wring out and sodden with 15 gallons of old sumac liquor, 1½ lb. of copperas, and 2 gallons of urine. Work it in this for 15 minutes, wring out, and again put it into the lime liquor and work in it for 10 minutes, and then wring out. Afterward scald 6 lbs. of chipped logwood with 15 gallons of boiling water, and work in this for 20 minutes, and then give the cotton 3 turns in 15 gallons of cold water, in which 1 lb. of copperas has been dissolved. Soap it with 1 lb. of soap in 20 gallons of warm water, and wash off in cold water and dry.

To dye brown, proceed as above, only with 4 lbs. of the extract, and in the morning take the cotton out and work it for 30 minutes in 20 gallons of cold water, to which add 2½ pints of red cotton spirits. Then wash off in two cold and one warm waters. Then scald 7 lbs. chipped logwood with 15 gallons of boiling water, and let it cool a little, and then work the cotton in it for 30 minutes. Take the cotton out and add 1 lb of alum to the bath and work the cotton again for the shade required. Wash off in cold water, and dry.

By red cotton spirits is meant a compound of about 2 parts of aquafortis to 1 pint of spirit of salts, to which block tin is added for the purpose of killing it before using. The quantities directed to be used of the several aniline dyes are applicable to the usual commercial strengths.—*European News.*

A SIPHON FOR DRAINING A TUNNEL.

The tunnel through the Blue Ridge, in Virginia, is 4,273 feet long, and 700 feet below the top of the mountain; on this account it was thought expedient to construct without shafts. This tunnel slopes from west to east, at the rate of 70 feet to the mile, so that, on the west side, the water, which proved very abundant and troublesome, had to be removed by artificial means. For some distance at the entrance I determined to introduce a siphon of unusual length, which proved a difficult, and, at the same time, interesting experiment.

The whole length of the siphon is 1,792 feet, viz., 563 feet inside of the tunnel, and 1,229 feet outside. The level of the water inside is upward of 9 feet below the summit, and the fall outside 29½ feet, so that the head is a fraction over 20 feet.

Iron faucet pipes of three inches interior diameter were adopted. It was feared that larger ones would carry along too much air; and that the siphon would have to be fed too often at the summit, an apprehension which the results observed seem to justify.

A common faucet cock is placed at each end, to close the siphon when it becomes necessary to fill it again with water; and at the summit a large air vessel is provided to collect the air disengaged from the water, with a suitable opening at top, to let the air out and replace it with water; this opening being closed by a cap tightly screwed down. At the bottom of the air vessel there is, besides, a large cock, which is closed while the siphon is being fed through the top opening, so as not to interrupt the running of the siphon during the operation.

The annexed diagram represents the air vessel, *a*; *b* is the cap; *c* the cut-off cock; *e* the main pipe or siphon; *d* is a glass tube for observing the level of the water. This, however, being often broken was dispensed with at last; the level of the water being easily ascertained by knocking against the air vessel.

Things being now disposed as described, it might be supposed that the discharge would have gone on uninterruptedly, requiring only a careful attention to replenish occasionally with water the air vessel; but such was not the case; at first the joints had been made tight by packing with oakum and then thickly pitched over. The siphon was filled with water through the air vessel, which, being then closed and the ends open, the water began to flow; but this did not continue for more than five or ten minutes, when the air vessel was found empty of water, and had to be replenished at these short intervals; moreover, notwithstanding this tedious repetition of feeding the siphon, it would ultimately run dry in about two hours.

This was a truly discouraging circumstance; we ascribed it to the fact that, there being upwards of 200 joints, air was introduced in small bubbles through the oakum packing by the external pressure at every joint, and that it accumulated rapidly all along, especially in the longer arm of the siphon, which soon became too light. Accordingly, we decided not to abandon the enterprise, but to caulk the joints with lead in the usual way, which was not done before for motives of economy, and because, it being only a temporary fixture, it would have been more easily taken apart.

This operation was not entirely successful, though the caulking was made so hard that many of the bells broke in packing, without making the joints perfectly impermeable. Then a cement was made of equal parts of white lead and red lead mixed to the consistency of soft putty, with equal quantities of Japan varnish and boiled linseed oil. This cement carefully coated over the joints, made them at last perfectly tight. The siphon thus improved runs now regularly. Still the air vessel must be replenished with water every two hours, which is done by a pipe leading from a spring; and moreover, every six hours the ends must be closed, and the whole siphon filled in anew with water; otherwise it would run dry. It is probable that, owing to its being so long, and consequently so level, bubbles of air travel along very slowly and increase in size gradually; possibly some air may find its way under external pressure through the iron itself.

A curious circumstance took place in the beginning; the tunnel having progressed much beyond the well of the siphon, and the water considerably increased, a horse-power with chain pumps was constructed at the further end to pump up the water into troughs, by which it is led to the siphon well Here, the siphon being insufficient for this accession of water, another horse-power was introduced to pump up water out of the same well. As soon, however, as the chain pumps began to revolve in the well, the siphon suddenly stopped and we were obliged to dig a separate well for it; since which time both have worked well.

The siphon, by actual measurement, when just replenished, discharges 43½ gallons per minute, whereas all known formulæ give between 54 and 60 gallons, and furthermore, in Weale's "Engineers' and Contractors' Companion" occurs this conflicting remark taken from R. A. Peacocke's work:

"By Dr. Young's formula (considered by him the best), a 5-inch pipe would be used where a 3½ would suffice; a 7-inch where a 5 would suffice; a 10 inch where a 7 would suffice, and a 14-inch where a 10 would suffice."

And then he goes on to show the useless expenditure resulting from pipes too large being used in obedience to these formulæ. But here, in this extraordinary long siphon, his opinion is not sustained, and we find, on the contrary, the discharge is less than the formulæ given, and that neither they nor Mr. Peacocke's rules are applicable to this case.

The siphon I have described is, I believe, the longest ever attempted to be used, and on this account the results and anomalies it presents are somewhat interesting. It certainly has rendered considerable service in the Blue Ridge Tunnel; with no other current expense than the employment of a man to attend to the air vessel.—*By Col. Claudius Crozet, C. E., in the Journal of the Franklin Institute.*

A Chinaman on the Chinese Question.

Whatever may be the average intellect of the Chinese, there can be no doubt as to the intellect of the man who made the following speech. The remarks were delivered by Choy Chew, a Chinese merchant, at a recent banquet in Chicago:

"Eleven years ago I came from my home in China to seek my fortune in your great Republic. I landed on the golden shore of California, utterly ignorant of your language, unknown to any of your people, a stranger to your customs and laws, and in the minds of some an intruder—one of that race whose presence is deemed a positive injury to the public prosperity. But, gentlemen, I found both kindness and justice. I found that above the prejudice which had been formed against us, there flowed a deep, broad stream of popular equality; that the hand of friendship was extended to the people of every nation, and that even Chinamen must live, be happy, successful, and respected in 'free America.' I gathered knowledge in your public schools; I learned to speak as you do; to read and write as you do; to act and think as you do; and, gentlemen, I rejoice that it is so; that I have been able to cross this vast continent without the aid of an interpreter; that here in the heart of the United States I can speak to you in your own familiar speech, and tell you how much, how very much, I appreciate your hospitality; how grateful I feel for the privileges and advantages I have enjoyed in your glorious country; and how earnestly I hope that your example of enterprise, energy, vitality, and national generosity may be seen and understood, as I see and understand it, by our Government. Mr. Burlingame has done much to promote good feeling in China toward the American nation. He made himself well acquainted with the authorities at Pekin. He won their confidence to a remarkable degree. He is an excellent man, and, I believe, if his advice is received and acted upon, China will soon be the cordial friend of all the commercial powers of the earth. Already we are doing something in the way of progress in modern improvements. Steamboat lines have been established on our rivers, and the telegraph will soon connect us with the wonderful sovereignty of the Western hemisphere, where the people rule, where everything proclaims peace and good will to all. China must brush away the dust of her antiquity, and, looking across the Pacific, behold and profit by the new lessons of the New World.

"We trust our visit, gentlemen, may be productive of good results to all of us; that the two great countries, East and West, China and America, may be found forever together in friendship, and that a Chinaman in America, or an American in China, may find like protection and like consideration in their search for happiness and wealth."

The Anthracite Coal Region.

Concerning the anthracite coal region, which has been so much talked of in connection with the miners' strike, we find an interesting sketch in the Baltimore *Sun.* Its area is four hundred square miles, and one hundred and seven miles of it lie within the limits of Luzerne county, Pennsylvania. The total quantity raised in the whole State of Pennsylvania down to 1860, amounted to a little over eighty-three millions of tuns, of which Luzerne furnished twenty-nine millions. The first company for mining coal was formed in 1792, and it was five years before they shipped to Philadelphia, and this venture consisted of thirty tuns. The city authorities consented to take it, and tried to burn it under the boilers of the engines at the water-works, but it put the fire out. The balance was broken up and used in place of gravel over the sidewalks, and only the blacksmiths near the mines used the coal for home use. The discovery was made by a tavernkeeper, Jesse Fell, of Wilkesbarre, who concluded that a good draft was alone necessary to make it burn, and he built a grate of green hickory saplings, placed it in a large fireplace in his barroom, filled it with broken coal and dry wood under the grate and set it on fire; the flames spreading through the coal, it was soon ignited, and before the wooden grate bars were consumed the success was proved, and hundreds of people flocked to the old tavern to witness the discovery.