

the physical vigor and acquired industrial skill of the immigrants themselves. As to the rate at which these ought to be appraised opinion will differ widely, for all estimates of their value are necessarily more or less speculative. We cannot apply to this wealth-producing power the brutal though fairly conclusive test which fixed the value of slave labor, by the price it brought under the hammer of the auctioneer. It is only by indirect and imperfect modes that any idea of its worth can be obtained, and so intricate is the problem that little reliance can be placed upon the most elaborate calculations. For our present purpose, however, it is not necessary that any very minute estimates should be attempted. It will suffice if we give some rough indication of the enormous additions that are being made to the wealth of the United States by this continuous inflow of skilled labor, and to that end let us first look at the composition of the emigrating body. In 1879 it was made up thus:

Males between 15 and 40.....	46 per cent.
Males over 40.....	7 per cent.
Females over 15.....	10 per cent.
Females under 15.....	28 per cent.
Females under 15.....	9 per cent.

Now it is probably considerably below the mark to place the average duration of active life in the males between fifteen and forty—the time, that is, during which they will be working with full vigor—at fifteen years. For those above forty an average of ten years does not seem excessive, while, if we calculate that of the males under fifteen one-third will have an active working life, at full adult wages, of twenty years, we keep well within bounds. It is further a reasonable supposition that a sum equal to at least 20 per cent of the wages earned by this body of workers will be realized as profit on their labor, and recent statistics place the average wages of all classes of male laborers in the States at about \$625 per annum. On an average, therefore, each actively employed workman may be said to add \$125 per annum to the capital of the country; and, taking the duration of active life above estimated, we arrive at the conclusion that the average value to the United States of each man and boy arriving as an immigrant is not less than \$1,625. Going now a step further, and assuming the value, as a producer of wealth, of each female to be only a fourth of that of a male, we get an average value for each man, woman, and child of about \$1,250. Of course a deduction should be made from this estimate for the scum of the immigrants, who instead of adding to the wealth of the country detract from it. But, on the other hand, a far greater sum must be added as the equivalent for the profit realized from the labor of the children begotten by the immigrants, and also for the fact that many of the skilled artisans arriving in the States are able, by their special knowledge of manufacturing processes, to add greatly to the efficiency of the native labor. If, however, in order to avoid anything like exaggeration, we place the average value as a capital creating force of each immigrant at \$1,000, we get as the actual or potential addition to the wealth of the country by such a body of immigration as that now taking place the enormous sum of \$500,000,000 per annum. This estimate, we would again repeat, is not put forward with any claims to perfect accuracy. It is simply a rough calculation intended to bring home to the minds of those who may not have thoughtfully considered the subject some notion of the rapidity with which the United States are being enriched by the draughts they are making upon the population of the Old World. But it is some indication that we have not overstated the annual movement of wealth arising in this way that the United States Bureau of Statistics have estimated the growth of capital through immigration in the fifty years prior to 1871, when, of course, the influx was trifling to what it is now, and when, moreover, the quality of the immigrants was much below the present standard, at an average of \$125,000,000 per annum.

Good Use for Sawdust.

What shall we do with the sawdust? is a question which puzzles the economic brain of the man who realizes that the utilization of the fast depleting forests is accompanied with an amount of absolute wastefulness simply appalling. "Make it into railroad car wheels," says an enthusiastic inventor of Chicago, who has discovered a means of compressing sawdust, bran, tea, and kindred bulky substances into from one-tenth to one-third of their original bulk. The *Lumberman* some weeks since spoke of this invention in terms somewhat of disparagement, which it subsequently modified on seeing specimens of sawdust and bran compressed into a remarkably small compass. Its credulity is further shaken on being shown a model of a car wheel consisting of an iron rim of seven inches outward diameter by one-half inch thick, fitted with a well proportioned hub, the space between the hub and rim filled with pine sawdust, pressed in so solidly that we are ready to believe the assertion that, resting the iron rim upon bearings, a pressure equal to 23 tons applied to the hub failed to develop any signs of weakness. We hesitate in these days of progress to assert that anything is impossible, and we begin to think that even sawdust possesses elements of value hitherto unsuspected, and that the day may come when the filled grounds adjacent to all saw mills may be seen to have a great value in the mechanical development and utilization of the now useless debris placed upon them to get it out of the way. Sawdust car wheels, sawdust brick, sawdust fence posts, railroad ties, and even sawdust window and door frames, wainscoting and mouldings, begin to appear among the possibilities of the immediate future. Sawdust hair pins,

watch chains or cases, and sawdust knives and forks, or sawdust shovels, pitch forks, or hoes, will probably not be urged upon this generation, which will remain satisfied with utilizing sawdust in place of the more expensive basswood in the manufacture of hams and cakes of soap, but the field of possibilities is still large enough to utilize a vast amount of this valueless material. Seriously, however, the compression of bran and oats into one-tenth of their original bulk, without injury to the substance, means cheaper transportation, which will enable their shipment to foreign lands at a profit which their bulk has rendered impossible, while with the freight on tea from China, costing about \$25 per ton on account of the space it occupies, a compression into one-third its bulk would mean a saving of from three-quarters of a cent to one cent a pound on freight and labor of handling. It is not by any means impossible that we may buy a "brick of tea" in the near future which we can carry home in our vest pocket, or that the housewife may keep her truant husband at home evenings to saw the coffee up into thimblefuls suitable for the preparation of the morning draught.

Verily it would seem that with the recent discoveries of a Rip Van Winkle of the press, who after being absent from home for a year had to have a pilot to show him about the city of his former residence, and who in his absence developed a sixty year stock of pine on the Menominee, and about as large a supply throughout the State of Michigan, there is no danger after all of a timber famine, at least so long as the sawdust holds out.—*Northwestern Lumberman.*

Removal of Stains and Spots.

Matter Adhering Mechanically.—Beating, brushing, and currents of water either on the upper or under side.

Gum, Sugar, Jelly, etc.—Simple washing with water at a hand heat.

Grease.—White goods, wash with soap or alkaline lyes. Colored cottons, wash with lukewarm soap lye. Colored woollens the same, or ammonia. Silks, absorb with French chalk or fuller's earth, and dissolve away with benzine or ether.

Oil Colors, Varnish, and Resins.—On white or colored linens, cottons, or woollens, use rectified oil of turpentine, alcohol lye, and their soap. On silks, use benzine, ether, and mild soap, very cautiously.

Stearine.—In all cases, strong, pure alcohol.

Vegetable Colors, Fruit, Red Wine, and Red Ink.—On white goods, sulphur fumes or chlorine water. Colored cottons and woollens, wash with lukewarm soap lye or ammonia. Silk the same, but more cautiously.

Alizarine Inks.—White goods, tartaric acid, the more concentrated the older are the spots. On colored cottons and woollens, and on silks, dilute tartaric acid is applied, cautiously.

Blood and Albuminoid Matters.—Steeping in lukewarm water. If pepsine, or the juice of *Carica papaya*, can be procured, the spots are first softened with lukewarm water, and then either of these substances is applied.

Iron Spots and Black Ink.—White goods, hot oxalic acid, dilute muriatic acid, with little fragments of tin. On fast dyed cottons and woollens, citric acid is cautiously and repeatedly applied. Silks, impossible.

Lime and Alkalies.—White goods, simple washing. Colored cottons, woollens, and silks are moistened, and very dilute citric acid is applied with the finger end.

Acids, Vinegar, Sour Wine, Must, Sour Fruits.—White goods, simple washing, followed up by chlorine water if a fruit color accompanies the acid. Colored cottons, woollens, and silks are very carefully moistened with dilute ammonia, with the finger end. [In case of delicate colors, it will be found preferable to make some prepared chalk into a thin paste, with water, and apply it to the spots.]

Tanning from Chestnuts, Green Walnuts, etc., or Leather.—White goods, hot chlorine water, and concentrated tartaric acid. Colored cottons, woollens, and silks, apply dilute chlorine water cautiously to the spot, washing it away and reapplying it several times.

Tar, Cart Wheel Grease, Mixtures of Fat, Rosin, Carbon, and Acetic Acid.—On white goods, soap and oil of turpentine, alternating with streams of water. Colored cottons and woollens, rub in with lard, let lie, soap, let lie again, and treat alternately with oil of turpentine and water. Silks the same, more carefully, using benzine instead of oil of turpentine.

Scorching.—White goods, rub well with linen rags dipped in chlorine water. Colored cottons, redye if possible, or in woollens raise a fresh surface. Silks, no remedy.—*Muster Zeitung für Faerberei, Druckerei, etc.*—*Chemical Review.*

Deep Drive Wells.

In the vicinity of Antwerp, much difficulty is experienced in obtaining water, owing to the fact of the ground being entirely a deposit of fine sea sand of a "blowing" nature. Mr. Huger, the agent of the Great Eastern Railway Company at Antwerp, has been trying to ascertain how deep the bed of sand extended, and has made his first attempt on a very small scale, employing an "Abyssinian" tube well, only 1 1/4 inch diameter, and driven by a monkey weighing 75 pounds. With this little tube he has been able to reach to no less a depth than 152 feet, testing the soil at short intervals the whole way down, and demonstrating that nothing but sand extends to this depth. It is now very probable that the attempt will be followed upon a larger scale.

NEW INVENTIONS.

An improved horse-stopping attachment for wagons has been patented by Mr. George W. Blake, of Port Townsend, Washington Ter. The object of this invention is to furnish horse-stopping attachments for wagons so constructed that the momentum of the wagon may be utilized for stopping the horses.

Messrs. Anthony Marschall & Casper L. Marschall, of Evansville, Ind., have patented a harness buckle whose swinging tongue is provided with curved notches and a single point at right angles to the main body of tongue, the point being grooved in front and near its upper end.

An improved child's stocking suspender has been patented by Harriet F. Bowman, of Mattoon, Ill. The invention is designed to avoid the necessity for the use of garters for holding up children's stockings, the bad effect of an impeded circulation, cold feet, and other incidental evils being recognized as due, to a large extent, to the use of tight garters, which, as the child grows, constantly become tighter.

In that class of type-writing machines in which the paper is placed between a printing cylinder and smaller paper-pressing feed rollers, and is held by endless rubber belt, small sheets of paper, such as envelopes, cards, etc., cannot be satisfactorily held and passed around the rollers, thus preventing a general use of the type-writing machines. To avoid this difficulty Mr. John H. Pratt, of Allentown, N. J., has patented a new paper presser for type-writing machines, which carries and holds small pieces of paper, such as cards, envelopes, small sized note paper, etc., to be written upon by the machine.

Mr. Charles J. Le Roy, of Palestine, Texas, has patented improvements in reel spool racks used in retail stores for holding different sizes and kinds of rope coils in a convenient manner for unreeling any required length of rope without disarranging the coil. It consists in a peculiar construction of frame and arrangement of the spools or reels upon the frame to secure a light and compact structure of sufficient stability to support the required number of rope coils.

Early Rising.

Of course the majority of the busy members of the community have been "away for change of air and scene," and, equally, of course, the majority have derived substantial benefits—not at the moment apparent, perhaps, but to be evidenced, in better health or more energy, presently. This is, therefore, a good time to speak of such reforms in the management of self as may be expedient. We venture to suggest that those who have not yet made a fair trial of the practice of early rising should do so. With a cup of tea, and perhaps a single slice of bread-and-butter, to wake him at 6 or 6:30 in the morning, a fairly healthy man may go to his study, and enjoy the priceless luxury of two or three hours of work, when his brain is clear and the distractions of the day's ordinary business have not begun to assail him. The practitioner of an applied science, such as medicine, is especially in need of time for reading and quiet thought. In the active hours of the day this is denied him. At night he is, or ought to be—but for the bad habit of reading by night, probably formed in student days—too weary in mind and body to do good work. In the early morning, with his brain recuperated by sleep, and his whole system rested, he is especially fit for labor. Those who do not feel thus on awakening are either the subjects of some morbid state, or the slaves of a habit which, however common, is essentially unnatural. Some of the difficulties which beset the task of early rising are due to want of method in the act of "getting up." It is comparatively easy to rouse one's self instantly, but to not a few of us it is extremely irksome, and almost impracticable, to rise slowly, that is, taking time to think about it. The man who really wishes to rise early should get up the instant he wakes, and, if weakly or over forty years of age, instead of plunging into cold water or applying cold to the head to rouse himself, he should, as we have said, take a cup of tea or milk to stimulate the organism before expecting to elicit a reaction by a powerful depressant such as the cold bath or douche. Many persons make a mistake in this matter, and by taking their bath immediately after getting out of bed, lower the vitality instead of raising it. In certain cases it is better to leave the bath until after a walk or a spell of work has thoroughly awakened the organism and called out its energies. Experiences in relation to this and other matters must differ as widely as constitutional peculiarities diverge; but, speaking generally, the early morning is the time for serious work, and those who do not so use it find a poor substitute, and one which is by no means hygienic, in the late hours forced upon them. A man cannot get up early if he goes to bed late; but as between the two extremities of the day, the morning is, on all accounts, the best for brain exercise.—*Lancet.*

A Cure for Night Sweats.

A powder known as *streupulver*, composed of 3 parts salicylic acid and 87 parts silicate of magnesia, is used in the German army as a remedy for sweating of the feet. Recently a Belgian physician, Dr. Kohnhom, tried its efficiency in several cases of night sweating by consumptives. The beneficial effect was immediate and permanent. The powder was rubbed over the whole body. To prevent any breathing of the dust and consequent coughing a handkerchief must be held over the patient's mouth and nose while the powder is being applied.

New Mineral Discoveries.

From the proceedings of the Academy of Natural Sciences of Philadelphia, just published, we extract the following among the mineral deposits recently discovered:

A New Locality for Amethyst.—Mr. W. W. Jefferis announced that amethysts, well crystallized, and of a rich purple color, had been found this spring, for the first time, in the northern part of Newlin Township, Chester county, Pa. They were brought to the surface by deep plowing, and were supposed to be derived from a vein of this mineral.

A New Corundum Locality.—Mr. W. W. Jefferis remarked that a vein of blue corundum, similar to that found in North Carolina, was struck, on the south side of the Serpentine ridge, in Newlin Township, Chester county, Pa., a short time since. The vein is well defined, between walls of calcite, in large plates of a yellowish-green color. Over 500 pounds of massive blue corundum has been taken out within ten feet of the surface.

Minerals in North Carolina.—Mr. H. C. Lewis communicated the following list of minerals which he had found near Dobson, Surry county, N. C., during a recent visit to that locality:

Native sulphur, galena, pyrrhotite, pyrite, chalcopyrite, hematite, menaccanite, magnetite, limonite, hausmannite, psilomelane, wad, hornblende, actinolite, asbestos, garnet, talc, steatite, ripidolite, chlorite.

The psilomelane occurred in a bed about 18 feet in thickness.

The magnetite was frequently polar. Native sulphur occurred in cavities in quartzite as a coarse loose powder of rounded wax-like grains, and was the result of the decomposition of pyrite.

It was also stated that rutile occurred in Alexander county, N. C., a new locality.

Fossil (?) Casts in Sandstone.—Dr. J. M. Cardeza exhibited specimens of quartz sandstone (Potsdam?) which he had found lying loose upon the soil at Dutton's Mills, Pa., in which were oblong rounded casts of sandstone, about an inch in length, and similar to one another in shape. It was questioned whether they might not be fossils.

An Inclosure in Quartz.—Mr. H. C. Lewis exhibited a crystal of quartz from Herkimer county, N. Y., in which, hanging from a bubble which moved in a cavity containing liquid, was a tuft of minute acicular crystals of a pure white color. A microscopical examination had failed to identify them with any known substance. The crystals were similar to those of many organic salts. It was conjectured that they had crystallized out from the liquid. Under a power of 75 they looked like tufts of white wool, and it was suggested that if future investigation failed to refer them to a known mineral species, it might be convenient to give them the name *Ervilite* (from Gr. *erion*, wool).

In other cavities in the same crystal there was an amorphous yellowish-brown waxy substance of unknown composition.

Menaccanite and Talc from Maryland.—Mr. Wm. W. Jefferis remarked that in Harford county, Md., near the village of Dublin, there is a vein of green foliated talc in the serpentine, which has been opened about 6 feet in length. It has furnished cleavage foliated specimens over a foot in extent. The same vein contains menaccanite in tubular crystals, well crystallized. Yellow beryl has also been found there, showing all three in the same specimen.

Sunstone in Labradorite.—Mr. Jefferis stated that on examining a specimen of labradorite in his possession, from the coast of Labrador, he found that in addition to the usual play of colors (blue and green), by turning it in another direction it showed innumerable crystals of goëthite, making it a beautiful sunstone, which, he believed, was an unusual thing, and which he had not found mentioned in the books.

Tanning in China.

A writer in one of our foreign exchanges thus describes the Chinese mode of tanning: The skins are put into tubs containing water, saltpeter, and salt. After thirty days they are taken out, the hair is shaved off, and the skins well washed in spring water. Each hide is then cut into three pieces, and well steamed, which is done by passing them several times backward and forward over a steaming oven. Further, each piece is stretched out separately over a flat board, and secured with nails, in order that it may dry gradually and thoroughly in the sun. The smoke of the oven makes the leather black, and if it is required to give it a yellow appearance it is rubbed over with water in which the fruit of the so-called wongchee tree has been soaked. Of the offal glue is made by heating it in pans for twelve hours over a slow fire. The glue so obtained is poured into rough earthen vessels, where it remains three days in order to coagulate. The solid mass is cut into pieces with sharp knives, and carefully laid upon grating-like trays to dry, which are placed in open spaces resembling the Dutch thrashing floors. The time taken in drying varies according to the season of the year; with a northwest wind it will be about five days only, but with a southwest wind as much as thirty or forty days will be required. The dregs from the offal left in the pans, as well as the hair from the skins, are sold to the farmers for manure. At Oak-sha, a village near Canton, there is an extensive establishment for the manufacture of leather, which is well worth a visit. The Mongols in wild parts of the country make clothes from goat skins, which are excellent and durable protection against the cold and wet. When the hair is taken from the

skins, carpets and mats are made from the latter. In the south of China the hides are eaten, and the hair is either sold for dung or utilized in various ways in the manufacture of Chinese feathers.

Concentration in Business.

A writer in the *Economist* warns merchants and others against engaging in business foreign to their legitimate vocation. Successful business men, he claims, are of a conservative nature. Like skillful generals, they mass their forces in solid columns, instead of thinning ranks in trying to cover a wide area of ground. Solid battalions resist successfully the fierce onslaughts of the enemy and win the day, while weak columns go down at the first charge of the bayonet. Merchants who concentrate their energies and talents upon their legitimate business and let outside matters alone, keep their affairs well in hand, and are therefore fortified against sudden disaster. When they, however, begin, in addition to selling merchandise, to go into outside speculations, they weaken their forces and try to cover too much ground. A merchant cannot run a store and farm safely side by side, either the one or the other will suffer. Dry goods and silver mines do not mix well together when the same hand guides both. A collision detrimental to one or both interests will sooner or later occur. A manufacturer should not attempt to raise sheep because he uses their fleece in his mills. His business is to see that out of every pound he buys he turns out as many yards of goods as it is possible to do and produce a good fabric. Here is enough to occupy his time profitably, without buying land and going into sheep husbandry. With many business men the trouble is not so much in making money as to keep it when it is made. They are of a restless temperament, never satisfied, always on the *qui vive* eager for speculation and ready to dabble in outside ventures. They speculate in stocks, take a venture in grain or pork, risk largely in wool or cotton, and always willing to subscribe handsomely for the shares of gold or silver mines. Such men lack the power of concentration. With divided mind, divided energies, and divided capital, they are scattered over too wide a surface, and at the first wave of a panic they go down into insolvency and financial ruin.

Not so the business man who steadily pursues his legitimate occupation. He husband his resources of energy and capital, he gathers renewed strength with the profits of every year, he looks ahead for breakers, and is fortified with a good bank account when disaster threatens the commercial world.

Conservatism in business does not allow of a trade far exceeding the bounds of capital employed. Here is also a source of danger. It is never safe to depend upon outside aid to float an extended business. The danger may be delayed when crops are splendid and the country prosperous, but sudden reactions occur frequently in trade, and money grows tight and capital timid. In such seasons the business man who has attempted to cover too much ground is often forced to the wall. Had he kept his trade under wise control he would have passed safely through the sudden flurry. Credit and character are both important in commercial affairs, and are secured only through well directed conservatism. For a man to succeed he must concentrate his powers and abilities, mark out a safe, straight line and steadily pursue it. He will find in the long run that one pursuit furnishes ample scope for all his energies, and if wisely followed will bring appropriate reward.

Boston Founded on a Gold Bed.

An artesian well is now being sunk in Boston, which, according to the *American Architect*, seems to have at least one peculiar feature. The well has been driven rather more than fifteen hundred feet without reaching any considerable spring, although there is a constant moderate flow of water into it, but it seems that at a distance of fourteen hundred feet from the surface a stratum of gold-bearing quartz, twenty feet thick, was reached and pierced. As the city is itself situated on a mass of diluvial clay and gravel, although surrounded on all sides, at a distance of a few miles, by granite and porphyry formations, it might naturally be inferred that the auriferous vein would crop out somewhere about the edge of the basin, and as "bonanzas" twenty feet thick are not only rare but valuable, possibly further attempts may be made to trace the course of the deposit. We are not informed, adds the editor, whether the material brought up by the auger proved to be very rich in the precious metal; probably it was not, but no surprising results could be expected from a random incision into the rock. Whether any one succeeds in making any profit out of it or not, the thought that Boston, alone of large cities, rests upon a plateau of gold ore may at least serve to gratify the vanity of its inhabitants.

Manufacture of Oil Barrels.

The American paper barrel makers are quite confident that barrels produced directly from pulp can be made to take the place of the barrels now used for petroleum. At present it appears to be purely a matter of cost. The barrel factories of the Standard Oil Company turn out daily 30,000 iron bound, blue painted, wooden barrels, costing \$1.35 each. The barrels are hooped by machinery, each machine, requiring a man and two boys to attend to it, hooping 1,200 barrels a day. The barrels are also painted by machinery. The saving of but one cent a barrel in cost would save the company \$300 a day.

AGRICULTURAL INVENTIONS.

Mr. William W. Hopkins, of Thorntown, Ind., has patented an improved wagon scale, the object of which is to enable farmers to have a convenient set of farm scales for general use, and one adapted to weigh the contents of a wagon in bulk. It consists in the peculiar arrangement of a set of weighing levers fastened to the bottom of the wagon body, and adapted to bear against the bolster, in combination with a graduated scale beam, also carried by the wagon body.

Mr. William I. Ely, of Freehold, N. J., has patented a harvester for cutting cornstalks while standing in the field. It is so constructed as to raise inclined or fallen stalks, cut them, and drop them upon the ground in even bundles.

Mr. Joseph Howard, of Bryan, Texas, has patented an improvement in rolling hopper planters, which consists in the construction and arrangement of the devices whereby the hopper is attached to the beams or frame of the machine.

An improved hay elevator and carrier, patented by Mr. George Rundle, of Palmyra, Wis., consists in certain novel details of construction, arrangement, and combination of a hay fork, a carrier, and devices for raising and lowering the fork and its load and for operating the carrier.

Mr. Robert N. Boston, of Chestertown, Md., has patented an improvement in the class of machines adapted for simultaneously dropping and covering corn and guano or other fertilizer. The corn and guano are placed in separate hoppers, between which is a rotating wheel whose shaft or axis projects into the respective hoppers, and is provided with teeth that agitate and assist the discharge of the contents of the hoppers. The latter deliver corn and guano, respectively, into separate pockets or receptacles, from which they are taken up by cups affixed to the ends of radial arms projecting from and revolving with the aforesaid axis. The pockets and revolving arms are between the hoppers, and a seed spout is located in front of the pockets, so that the seed and fertilizer are delivered simultaneously into the same, and thereby mingled and conveyed into the furrow.

Mr. Joseph P. Prairie, of Raleigh, N. C., has patented a combined cotton planter and guano distributor, which is so constructed as to drop cotton seed and guano at the same time in uniform quantities and cover the seed and guano, and which can be adjusted to drop a larger or smaller quantity of either or both as required.

Mr. William Rucker, Sen., of Murfreesborough, Tenn., has patented a harrow so constructed that it will thoroughly pulverize the soil, will readily pass over obstructions, will not be liable to clog, will level and smooth the ground, and may be adjustable to work at any desired depth in the ground.

A novel combination, with a plow beam, of a clevis, a pivoted bar, a spring, and a supporting and carrying arm, whereby provision is made for raking and leveling weeds, stubble, corn stalks, and grass during the process of plowing, and for allowing the raking bar to yield when meeting obstructions, has been patented by Mr. Chauncey E. Worline, of Radnor, Ohio.

Honors to Sir Henry Bessemer.

The freedom of the city of London was lately conferred on Sir Henry Bessemer, F.R.S., at a special Court of Common Council. In acknowledging the honor thus conferred on him, Sir Henry Bessemer referred to the condition of the steel manufacture before the introduction of his process, and the rapid development of the industry which that process had caused. He compared the total steel production of the country, which did not exceed 51,000 tons a year, to the present output of nearly a million tons, and the reduction of price from £50 to £10 a ton. The document conveying the freedom of the city was presented to Sir Henry Bessemer in a gold casket of very excellent design, appropriately illustrating his process; this casket was the production of Mr. J. W. Benson, of Ludgate Hill.

The Electric Light on a Volcano.

The railway up Vesuvius has been successfully lighted up by fourteen Siemens and Halske electric lamps, and, according to the *Elektrotechnische Zeitung*, the illumination of the sides and crater of the volcano is grand in the extreme. Eleven of the lamps are placed along the line itself, and the remaining three at the upper end between the terminus and the crater. Various other essays of electric lighting are reported from abroad. For instance, the Brush lamp has been introduced into the anthracite mines of Pennsylvania, and the Place de Paris at Berlin has been lighted by four Siemens lamps erected on poles over 30 feet high, and each having a power of 1,200 candles. The port of Havre will soon be lit by Jablochhoff's system, as also will a new lighthouse at Marseilles.

Patent Brakes on the Car of Juggernaut.

The tendency of science to put intellectual brakes on human errors and superstitions has been demonstrated a thousand times. A pretty illustration of material interference of like sort for the benefit of humanity is furnished in the action of the English magistrate in Pooree, India, who lately compelled the priests of Juggernaut to put patent safety brakes on their famous car before they could have their annual procession. It will be remembered that the car is enormously heavy, and is very apt on down grades to get beyond control and run down large numbers of the processionists.