

thrown down; and it also, owing to the disorganized condition of its exterior, received further injury during its transit to this country. The effect of the silicious wash, we are told, has surpassed expectation, and is only to be compared to the restoration of an old painting. The obelisk first received a thorough cleaning, it was then coated with the solution, and now appears as if just chiseled from the rock, showing its original colors, the quartz and feldspar glittering in the sunlight. The intaglio also comes out much more distinctly than before.

The Metric System.

During the last Congress much evidence was collected with reference to the compulsory adoption of the metric system in this country. Among the papers was the following able report by the Quartermaster General:

"In reply to the reference of the resolution of the House of Representatives, in regard to the objections which may exist to making the use of the metric system of weights and measures obligatory, first, in all government transactions, and second, in all transactions between individuals, and the length of preliminary notice desirable before such metric law goes into operation in the United States, I have the honor to say that if the law makes the use of the metric system obligatory in all government transactions it can be adopted by officers of the Quartermaster's Department as soon as notified by general orders.

"Such an order can be distributed to every military post within the space of one month from the time of its publication, and, if the telegraph be used, within one week.

"The objections thereto which at once occur to me are:

"1. It will very considerably increase the labor of computation, for, in practice, all sellers to the United States will make their deliveries in accordance with the English measures now in general use, and the officers, using the ordinary scales for weight, and the yard, foot, and inch, and bushel, gallon, quart, and pint for measures, will first ascertain the quantities and sizes in the present weights and measures, and then, by the use of tables to be distributed, will reduce them to metric quantities in their statement of their vouchers, receipts, and accounts, which will, it appears to me, be a perfectly useless labor.

"2. This reduction, involving additional calculations and transfers from one set of units to another, unfamiliar, and much less convenient, will infallibly be the source of many mistakes, to the loss of the disbursing officer of the Treasury, or of the person who sells supplies to the United States.

"3. It will be necessary, in order to make the operation of such a law really successful, to throw away all the hay scales and other platform scales whose beams are now divided according to the American standard of units of weight, and all the rules and measures divided according to the yard, foot, and inch, and all the weights, pounds, ounces, or grains, of avoirdupois, troy, and apothecaries' weight, and to purchase, distribute, and substitute new scales and new weights according to the metric system. These changes will be expensive. The trouble and labor I do not speak of, as such labor will, in case of the passage of a law, simply be the duty of all officers and employes of the United States.

"4. If the metric system is made obligatory in government transactions and not in transactions between individuals, then continual confusion and misunderstanding will be caused by the use of one standard by the government and another by the people. All packages are put up by merchants, manufacturers, and producers in accordance with the actual legal standards, pounds, ounces, grains, yards, feet, inches. The transactions of the United States, large as they are, are insignificant compared with those of private trade. Manufacturers and consumers and the people will not change their customs at the call of the officers of the United States.

"In regard to making the metric system obligatory in transactions between individuals:

"I do not believe that this is within the power of Congress. It will be looked upon by the people as an arbitrary and unjust interference with their private business and individual rights, and I do not think they will submit to it. It will inflict, if it can be enforced, a great loss upon many, especially upon manufacturers and mechanics whose shops are filled with costly tools, standard gauges, dies, and machines, all constructed upon the basis of the foot and inch.

"Every geared lathe in the United States depends upon a screw of a certain number of threads to the inch, and all the screws it produces are gauged in pitch and diameter by the inch.

"The meter is not commensurate with the inch, foot, or yard; all reductions are approximate only. The law of July 27, 1866, makes the use of the metric system permissive, legal, but not obligatory, and establishes for the reduction of meters to inches, and the reverse, the ratio of one meter to thirty-nine and thirty-seven hundredths inches, which is not absolutely correct. To alter all this machinery, to change all these machines, gauges, dies, screws, and other parts of engines, will be the work of years—will cost millions of dollars.

"The metric system is not a convenient one for common use. Its measures are not of convenient length. The yard, half the stature of a man, is of convenient length to handle, to use, to apply. It, and the goods measured by it, can be halved, quartered, subdivided into eighths, sixteenths, thirty-seconds, sixty-fourths, etc.; or it can be with equal facility divided into tenths, hundredths, thousandths. Half a meter is no dimension: half a centimeter is an unknown quantity; but half a yard, half a foot, half an inch, half a bushel, one fourth of a bushel, of a quart, of a pint, etc., are recognized. If half a liter, of a deciliter, or a quarter, eighth, or sixteenth of these quantities is provided for, then the metric decimal system is abandoned at once.

"In calculation the metric system applies admirably to money and accounts of money; but even here the government has been obliged to abandon for the convenience of the people the true, strict, decimal system, and to coin half a dollar, half an eagle, the quarter of a dollar, etc.

"In the use of weights and measures, however, there are not so great advantages in the decimal system. The unit is too large, and the numbers produced and used in the calcu-

millionth of the Paris quadrant, is not what it professes to be and was enacted to be) cannot be found in the French metric system.

"1. The unit of length: The meter is 3 280890 + feet, or 39 37070 + inches.

"2. The unit of area: The are is 119 60332 + square yards.

"3. The unit of liquid measure: The liter is 0 26418635 + gallon, or 1 0567454 + quart, or 2 1134908 + pints.

"4. The unit of space: The stere is 1 308764 + cubic yard, or 35 386636 + cubic feet.

"5. The unit of weight is: The gramme = 15 43234874 + grains troy.

"6. The unit of roads is: The kilometer = 1,000 meters = 0 62138 + mile.

"7. The unit of land measure for farms and city lots is: The hectare = 2 47114 + acres.

"8. The commercial unit of weight is: The kilogramme = 1,000 grammes = 2 20462125 + pounds avoirdupois.

"What will our farmers, citizens, merchants, tradesmen, and mechanics do with these figures? And will they submit to being obliged to reduce acres, feet, inches, pounds, and ounces by multiplying or dividing by the above figures? "I think that to make the French metric system obligatory between individuals in this country will be an impolitic and arbitrary interference with the rights, interests, and habits and customs of the people."

Self-Reliance.

There is no one element in a man's character that contributes more to his success in life, wisely says the *United States Economist*, than confidence or self-reliance in his own ability. A faint-hearted man is unstable, and will never excel. Faith in the endeavor to will and to execute is as important in a successful business career as is the keystone to the arch. A man possessed of a bold, daring, and resolute will may be modest in revealing his powers, but will be determined in performing what he conceives to be right. To men with this never-dying faith there is no such word as defeat, and when obstacles present themselves in their path, it only results in their putting forth a greater effort to accomplish their purpose.

Toil, trial, disaster, gloom, and danger may environ and threaten to overthrow the most cherished plans, yet over and above all hindrances a heroic soul will triumph and win fame and honor. The discouragements that would retard the irresolute only discover the weak places to the brave, and, strengthening these, they renew the conflict with increased vigor. Timidity creates cowards and never wins success. It is a strong and abiding faith in one's own ability to perform that overcomes difficulties that others thought could not be surmounted.

In all the pursuits of life we find that those who achieve honor and distinction are strong and self-reliant in their own powers, exercise faith in their own ability, and carry out plans conceived in their own brain. Morse had faith in telegraphic wires, and Field in submarine cables, and to-day, in consequence thereof, the lightning is harnessed to convey the news of the world in every part of the habitable globe within the compass of a few hours. Two young men in 1862 commenced a banking business in Wall street in a small office. They had faith in their own ability and also that of the United States to pay its great war debt. To-day they are the leading bankers in government securities on this continent, their daily sales running into the millions, and their name and credit take high rank in all the financial centers of the world. Not many years ago Edison occupied an humble position as a telegraph operator; to-day his name and fame are world-wide as associated with some of the grandest discoveries of ancient or modern times. Astor, Stewart, and Vanderbilt furnish examples in the large fortunes

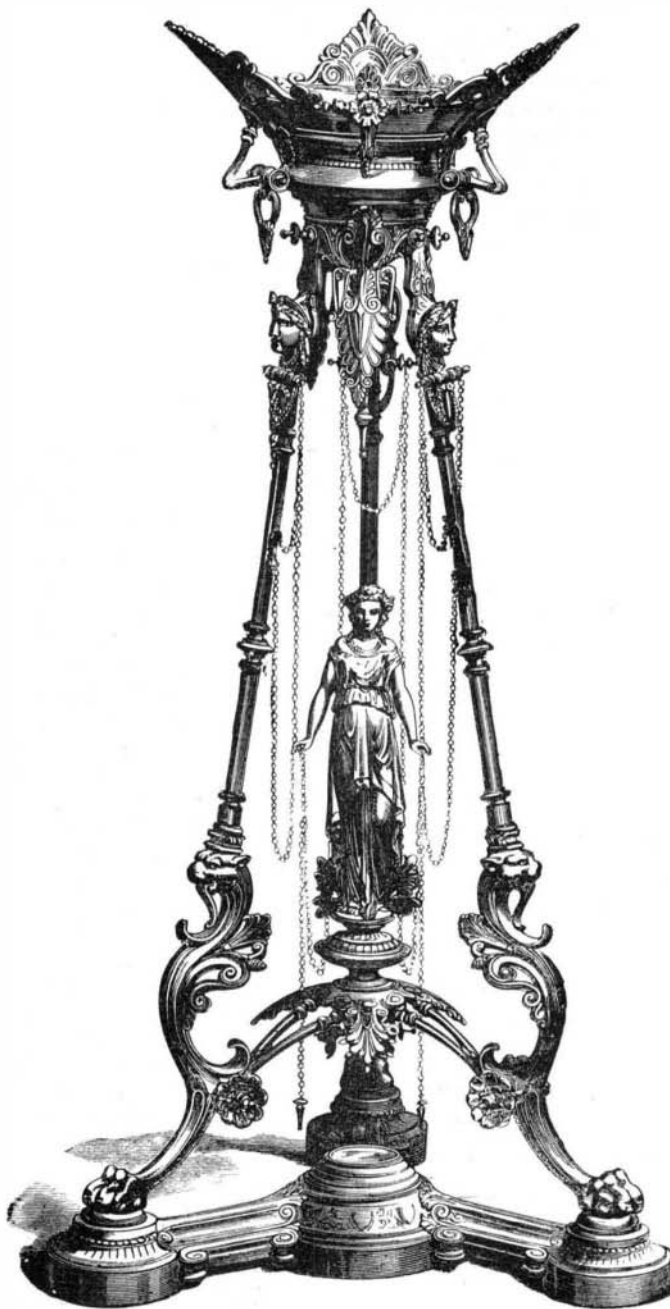
they created as to what well-directed energy and determination can accomplish in business pursuits, while the eventful life of the late Judge Packer is another striking illustration of the high position that can be attained by reliance and perseverance in the individual man, backed by a liberal endowment of common sense. In the ever-widening paths of commerce and the ever-increasing monetary circles there open up before the young men of the nation rare opportunities to win wealth and fortune. In agricultural, mining, industrial, and mercantile pursuits like avenues to attain distinction are presented. But fortune will not come by chance nor distinction by hazard; both must be won by strong, heroic endeavor. Backbone is vital in the achievement of lofty aims, and nerve and grit are essential requisites in the battle of life. A man, to triumph, must have faith in his enterprise and reliance in his ability.

FLOWER STAND.*

The engraving on this page represents an elegant bronze flower stand designed and manufactured by Mr. M. Semey, of Paris, France. A base like the lower portion of the stand is also used as the base for a candelabrum.

The judicious use made of the antique in this composition gives it interest.

* *The Workshop*: Wilmer & Rogers News Company, agents, 31 Beekman street, New York city.



BRONZE FLOWER STAND.

lations of the engineers are tedious to write and are beyond the limits of ready apprehension.

"The ciphers and figures 0 00000073 convey no idea to a mind trained in the English and American system, and yet such combinations are common in French works of science and mechanics.

"The true scientific natural basis of the metric system has been abandoned. The meter was intended and enacted to be the ten millionth of the quadrant of the terrestrial meridian of Paris. In the progress of geodesy and science, it is ascertained that the standard meter bears no (exact) relation to that quadrant, and, though it is probably very nearly the ten millionth of the quadrant of the meridian in which New York lies, it is not probable that it is the ten-millionth of either of the three other quadrants of that meridian, or of any quadrant of any other meridian.

"The fact is, that the meter is quite as arbitrary and unscientific a standard as the foot, or yard. It is of less convenient length than either of them, and its compulsory adoption would derange the titles and records of every farm and of every city and village lot in the United States; would put every merchant, farmer, manufacturer, and mechanic to an unnecessary expense and trouble, and all, it seems to me, for the sake of indulging a fancy only, and a baseless fancy, of closet philosophers and mathematicians for a scientific basis of measures and weights which (as the meter is not a ten

Medical Uses of Linseed Oil.

At the last meeting of the American Dermatological Association Dr. Sherwell read a paper on "The Use of Linseed and Oil as Therapeutic Agents in Diseases of the Skin." Every dermatologist, he said, had seen the necessity of introducing fats into the system, and hitherto almost the only available hydrocarbon had been cod liver oil. This disagreed with many patients, and was also open to a number of other objections; while, in the more palatable form of the commercial emulsions now frequently employed, he did not consider it reliable. A more assimilable fat was therefore desirable, and he thought he had discovered it in the flaxseed. He had been induced to try its use by observing the beneficial effects of linseed cake upon cattle and horses, both in making their coats sleek and improving their general condition; and his experience had shown that the agent was of equal service to the human economy. He was in the habit of employing it in a threefold administration:

1. If the patient were a male and had sound teeth, the seed itself was the best form in which to take it. The man could carry about ten ounces of this in his pockets, and would probably consume a teacupful in the course of a day. The ordinary domestic linseed was small and dark in color, and contained only about 20 per cent of oil; while that from Bombay or Calcutta (which was the kind recommended) was larger, lighter in color, and contained about 30 per cent of oil.

2. In the case of women or children the ground seed, mixed with milk in the form of a porridge, was more desirable, and was unpalatable to very few persons.

3. In certain cases it could be given in the form of bread, although he did not consider this method quite so efficient as the others. The bread could be made by mixing linseed meal with flour in any proportion desired. This had been suggested to him by Dr. Piffard. (A loaf containing 60 percent of the meal was here presented to the association, and was tasted by one or two of the members.)

When linseed was eaten, a natural emulsification was performed with the recent oil found in the stomach, and it had been established by chemists that a recent oil was much more active than one which had been long exposed to oxidation. The hulls also served to stimulate the peristaltic action of the intestines. He believed that it had specific virtues in dry and scaly diseases of the skin, such as pityriasis rubra, ichthyosis, and dry eczema, both on account of its special action upon the sebaceous secretion and its effect in improving the general condition of the patient.

Dr. Sherwell then gave in detail four cases of great obstinacy and severity, in which its curative influence was most happily shown. Two of them were cases of pityriasis rubra, one of pemphigus foliatus, and one of pemphigus vulgaris. He had also employed it with most marked benefit in four cases of ichthyosis, and had cured a large number of cases of chronic eczema with it. The seed was given internally in one of the forms above mentioned, and the oil applied externally. The lubricating effect of the latter was most admirable, and it had the advantage over most other oils of not becoming rancid when exposed to degraded epithelium. In eczema he was in the habit of wrapping the parts affected in a number of folds of linen saturated with it. He believed that flaxseed was a specific remedy for the sebaceous glands, increasing their secretions when it was diminished, and restoring it to its natural character when it had been altered by disease.

Dr. Van Harlingen stated that he had used linseed only in one case, and that was in the form of the oil internally; but he thought there was no beneficial result from it. This, he said, might possibly have been due to the fact that he used the ordinary domestic oil, and not that made from Bombay linseed.

Dr. Piffard said he had used the linseed oil internally, and he thought it was better than cod liver oil in many respects. Cod liver oil itself was fattening, while the iodine which it contained was just the reverse of this; and he thought this might explain why it was that it was impossible to fatten some persons on cod liver oil. The linseed, he believed, contained no starch, and it was, therefore, especially useful in diabetic patients with skin trouble, as well as affording an agreeable change of diet to them. The taste of this bread was not agreeable to many individuals at first; but it was, at all events, much more agreeable than cod liver oil.

Dr. White remarked that the so-called breads for diabetics invariably contained a certain amount of starch, and, therefore, if linseed was really free from starch, it was an important point to remember.

Brick Making on the Hudson.

The New York Tribune gives a detailed report of the brick industry on the Hudson, with the names of the principal firms engaged in the business, the capacity of the works, the output last year, the present supply, and the number of hands employed. It appears that between Tarrytown and Albany there are upward of 150 brickyards, varying in productive capacity from 20,000 to 140,000 bricks a day in the working season. Most of these are on the west bank of the river, which furnishes an inexhaustible supply of proper material. The sand is usually found at the surface, and the clay a few feet below, although the latter is frequently obtained at the surface and the sand at another point near at hand. The tempering machines and brick presses are now nearly all run by steam power; but the material is still carted by horses, and all other parts of the labor are performed by hand. The wages paid last year ranged

from 60 cents to \$3 a day, according to skill and ability to perform, "boss" burners getting the highest wages and boys the lower rate; the whole averaging about \$1.25 a day. The leading establishments—seventy or more in number—have a daily capacity of more than 4,000,000 bricks. Various other small brick firms exist on the river, of which trustworthy data could not be obtained, and doubtless not far short of 400,000,000 bricks are made here in a single season, by about 4,000 men and boys; an average of 100,000 each. The great brick center is Haverstraw Bay, where about forty separate manufacturers are established, including the largest on the river. Haverstraw and vicinity are especially adapted for the work, and their bricks usually lead the market, although various other makers claim to produce an article equally good. In burning this immense quantity of brick it is estimated that 40,000 cords of wood have been consumed, the labor of cutting and hauling which is not easily realized. Corliss & Hutton, of this city, claimed to have burned last season the largest kiln ever burned above the Highlands; it contained 2,250,000 bricks.

The Torrey Botanical Club.

The regular monthly meeting of the Torrey Botanical Club was held in the "Herbarium Room," at Columbia College, Tuesday evening, May 13. Mr. N. S. Britton, of Staten Island, read a paper on

"THE ANNUAL GROWTH OF TREES."

Finding nothing on record as to the annual growth of trees and the number of years that must elapse before a sapling becomes a tree of ordinary dimensions, the author made numerous observations during the past winter, the results of which are here recorded. Three separate notes were taken from each individual tree examined: (1) as to its age, (2) as to its height, and (3) as to its trunk circumference. The age was determined either from actual knowledge of the time when the tree was planted, or by counting the annual rings in the case of felled trees; the latter means of determination may be a year or two in error in some cases, owing to the difficulty in counting where the rings were obscure. Heights were determined in the case of standing trees by simple geometrical methods; and in the case of felled trees by measuring with a tape line. The circumferences of the trunks were taken at a distance of about 3 feet above the surface of the soil. The notes were then tabulated, and those for each species averaged.

Assuming the section of a trunk to be a circle, the average circumferences were reduced to corresponding diameters. Dividing the average height by the age, the average vertical growth per annum was obtained. Applying the same method to ascertain the diameter, the quotient gives the average annual increase in trunk thickness at its base, and one half of this is the annual thickness of the rings for that species. The following table gives a summary of the results:

Trees.	Average age.	Average increase in diameter.	Average increase in ring thickness.	Average increase in height.	Number of trees on which averages were taken.
Abies excelsa	32.6	0.61"	0.30"	1.73'	3
" balsamea	30	0.88"	0.19"	1.56'	8
Pinus strobus	27	0.51"	0.25"	1.52'	1
" rigida	32.6	0.81"	0.15"	1.17'	5
" mitis	38	0.45"	0.23"	1.18'	2
Thuja occidentalis	28	0.32"	0.16"	1.15'	3
Juniperus Virginiana	59.7	0.21"	0.10"	0.58'	12
Salix alba	32	1.06"	0.53"	1.62'	3
Liriodendron	88	0.45"	0.22"	1.57'	1
Juglans nigra	26	0.41"	0.20"	1.55'	2
Quercus alba	43	0.35"	0.18"	0.88'	6
Acer rubrum	28.4	0.45"	0.22"	1.51'	5
Carya tomentosa	70.4	0.20"	0.10"	0.95'	5
Betula alba	34	0.18"	0.09"	1.32'	3
Fagus ferruginea	44.8	0.36"	0.18"	0.78'	5
Ulmus Americana	88	0.52"	0.26"	1.31'	2
Castanea vesca	52.3	0.51"	0.25"	0.96'	7
Sassafras	27.1	0.23"	0.12"	0.96'	8
Catalpa	32	0.55"	0.28"	1.39'	5
Ailanthus	31	0.59"	0.29"	1.46'	11
Apple	23	0.65"	0.32"	1.23'	6
Cherry	29	0.54"	0.27"	1.40'	7

The notes were all taken near New Dorp, Staten Island, over an area of, say, three square miles, so that differences due to soil and rainfall must be small, and need not be taken into consideration. The average rates of growth given in this table do not of course apply to the trees at every period of their existence, since all trees grow much more rapidly in a vertical direction when young; the annual increase in diameter is more constant, but there is a slight decrease in ring thickness as they grow older, especially noticeable in old trees, and where much crowding has taken place.

In the discussion which followed attention was called to the fact that although the chestnut is usually considered a rapid grower, yet according to Mr. Britton's table it was surpassed in this respect by most other trees. In explanation of this, Mr. Wright, of Staten Island, remarked that according to his own observations the chestnut was of slower growth near the sea coast than inland.

A large number of plants, both wild and cultivated, were as usual exhibited by different members, and among them a magnificent clump of *Helonias dioica*, which was brought in by the Vice-President, Mr. Addison Brown. Mr. Wright exhibited a very interesting sprout of the peach tree in which the flowers were perfectly white and smaller than those of the normal form. Mr. Wright stated that the fruit borne by the tree was also white. Prof. A. Wood exhibited a specimen of the long lost but recently rediscovered *Shorea galactifolia*. Mr. Leggett exhibited a proliferous specimen of *Hepatica triloba*, in which the flowering stalks arose from the bracts at the summit of the main stem.

The Largest Orchard in the World.

The Rural Home is inclined to think the very profitable orchard owned and cultivated by Mr. Robert McKinstry, of Hudson, N. Y., is the largest in the world. If there is a larger we should be happy to hear of it.

The orchard is situated on the east bank of the Hudson river, on high, rolling table land, and contains more than 24,000 apple trees, 1,700 pears, 4,000 cherries, 500 peaches, 200 plums, 200 crabs, 1,500 vines, 6,000 currants, and 200 chestnuts. The varieties grown are: Rhode Island greenings, 7,000; Baldwin's, 6,000; King of Tompkins County, 4,000; Astrachans, 800; Northern Spy, 500; Wagener, 500; Gravenstein, 400; Cranberry Pippins, 200; Ben Davis, 200; Dutchess of Oldenburg, 200; with Jonathans, Hubbards, Cayugas, Vanderveers, Pearmains, Peck's Pleasants, 20 ounce Pippins, Russets, and others in less number.

The pears are Bartlett, B. d'Anjou, Sheldon, Seckel, and Lawrence chiefly. Of cherries there are twenty-eight varieties. The orchard is intersected by roads over six miles in length for the passage of wagons, and is bounded by a continuous row of apple trees set ten feet apart for four miles and a half. The apple crop of last year was 30,000 barrels. Twenty-four men and fourteen horses are employed hauling out the crop or in plowing.

The success of this orchard has not been achieved, nor is it maintained, without the closest supervision and most industrious work. The oldest trees are about twenty years old. The soil is dry, rolling gravel, with some limestone; the trees are planted twenty feet apart, and do not by any means seem to be crowded. The ground is plowed several times in the year and kept fallow; except when thought advisable it is seeded to clover. Suckers and sprouts are removed as soon as seen; the borers are watched and followed with vigor. Wires are used to reach them in their burrows, and the damaged bark is removed with chisels.

Peter B. Laweon.

Peter B. Laweon, chief engineer and superintendent of the West Point foundry, died May 14, at Cold Spring, on the Hudson. He was born at Low Point, Dutchess county, in 1810, and, having but few advantages of early education, was apprenticed to the West Point Foundry Association, then located in this city. At the age of twenty-one he was appointed by Mr. William Kemble, the proprietor, to the position of foreman of the machine shop, and the wisdom of the selection was verified by fifty-three years of active service, not only under his first patron, but the succeeding administrations of Mr. Gouverneur Kemble, Captain Robert J. Parrott, and the present firm of Paulding, Kemble & Co. As an inventor his patents have the merit of universal adaptation. To use his own expression, "I have never invented anything until the necessity arrived." His "slotter" for heavy iron work arose from the continual breakage of the best machinery in the building of the Collins line of steamships, and it is now in use all over the world. In steam engineering he was also eminently successful, he being the constructor of the engines of the United States steam frigate Missouri (burned at Gibraltar), the United States frigate Merrimac (afterward the terrible ram of Hampton Roads), the pumping engines at the Brooklyn Navy Yard, and many others. He was the first to discover that the windage of a rifled cannon ball could be annulled by a band of soft metal on the projectile, to be expanded into and cut by the rifling of the rim by the same explosion that propelled the missile. This patent expanded into the well known shot of his friend Captain Robert J. Parrott, used with such terrible effect during the late war. He was fine in personal appearance, possessed of great executive ability, and kind and genial in his disposition.—New York Herald.

Independent Silk Weavers.

The Times' report of the industrial condition and prospect of Paterson, N. J. (now more favorable than the city has ever known before) states that the greatest expansion has been in the silk industry; new mills are going up all the time, and during the darkest days of the "hard times" the erection of silk mills scarcely stopped, until now they employ nearly twice as many hands as they did six years ago. Besides, the system of manufacturing in the homes of the workingmen has attained wonderful proportions within a few years. When the hard times came, and weaving fell off, many of the weavers began to manufacture in a very small way for themselves; as they succeeded, others tried it, and to-day there are not less than 500 looms owned by practical weavers, and operated under their immediate supervision in rooms, garrets, sheds, and every place where a loom can be worked. Whole families thus find employment in their own homes; the men do the most difficult part, the women and children assist, and all feel that they are working for themselves. The profits of the trade are said to be small, for the largest as well as the smallest manufacturers, but the business is unmistakably prosperous, and many of the great mills have worked overtime for many months.

Notwithstanding the development of vast mills and other huge manufacturing establishments, incident to the use of steam and the accumulation of capital, the opportunities for independent production by individual workers are more numerous and more profitable to-day than ever before—for workers with small capital, we mean. No able worker who really wishes to be his own master, and is willing to work, need lack for chances. The man who will let himself become the "slave of capital" is usually incompetent of self direction and real independence.