Scientific American.

ESTABLISHED 1845.

MUNN & CO., Editors and Proprietors.

PUBLISHED WEEKLY AT

No. 361 BROADWAY, NEW YORK.

O. D. MUNN. A. E. BEACH.

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NEW YORK, SATURDAY, NOVEMBER 6, 1886.

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(Illustrated articles are marked with an asterisk.)

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SCIENTIFIC AMERICAN SUPPLEMENT

No. 566.

For the Week Ending November 6, 1886.

Price 10 cents. For sale by all newsdealers.

THE INAUGURATION OF THE STATUE OF LIBERTY.

About the year 1870, the French sculptor Bartholdi, having conceived the idea of executing a colossal statue, to be presented by his nation to the people of America, consulted with his friends and arranged a scheme for carrying out his ideas. Four years later the plan was made public. By subscriptions from the people of France, it was proposed to raise sufficient money to pay for the expenses of the work. A popular subscription was set on foot, and with the aid of entertainments the necessary sum was raised, and in 1876 the work was well under way. A part of the statue was sent to this country. Visitors to the Centennial in 1876 will remember the hand holding the torch, that was erected in the grounds near the main building. Subsequently it was placed in Madison Square in this city. The design selected was "Liberty enlightening the World," and this was her hand holding aloft the flaming torch.

In 1877 the necessary Act of Congress was passed accepting the statue and assigning Bedloe's Island, in the harbor of New York, as the place for its erection. In 1883, the statue being completed, the pedestal was commenced. This was erected by subscriptions and by the proceeds of entertainments in this country. The pedestal represents America's contribution to the design. Its situation on Bedloe's, now named Liberty Island, brings it close to the side of every vessel entering or leaving the port, while the isolation of the place prevents it from being interfered with by any other structure. It must always be visible from base to summit.

On October 28 the statue was formally presented to the people of the United States, and the public ceremonies in connection therewith constituted one of the greatest pageants of the day. In the city a grand parade from the upper streets down to the Battery, at the southerly end of the city, took place, in which the militia, the old volunteer fire department, and many societies were represented. This was a splendid affair.

The naval demonstration was also very fine. A large number of steamers, formed in order of naval parade, came down the Hudson River and gathered around the base of the great statue, which towers above Liberty Island. Near this point, the United States men of war Tennessee, Minnesota, Yantic, Jamestown, and Saratoga were anchored in line. The United States steamer Dispatch carried President Cleveland. As she steamed up and down the line of war vessels to review them, their yards and bowsprits were manned by the sailors, standing hand in hand high in air, and forming a most impressive spectacle. The display of bunting on all sides was profuse.

The ceremonies at the base of the statue included an address in French by Count Senator Ferdinand de Lesseps. His concluding words, which we give here, we may hope are a true prophecy:

"Soon, gentlemen, we will find ourselves reunited again to celebrate a new Pacific conquest. Farewell until we meet at Panama, where the thirty-eight stars of North America will come to float by the side of the banners of the independent States of South America, and will form in the New World for the good of humanity the peaceful and fruitful alliance of the Anglo-Saxon and the Franco-Latin races."

The presentation address followed; it was given by the Hon. William M. Evarts, as chairman of the American committee, and was addressed to the President. In a short speech the latter accepted the statue in the name of the American people, and he was followed by [illegible] the oration of the day.

To the spectators on the many steamers, the manning of the yards and the naval salutes were the most interesting parts of the ceremony. In addition to the firing, the great fleet of steamers blew their whistles continually during these times. In the grand salute a battery of the Gatling guns joined, and the effect of the artillery fired at rapid intervals, with the continuous roll of the Gatling guns as a background for their intermittent rounds, was very fine.

THE SCIENCE OF DRINKING.

According to a recent report by the Hon. Geo. C. Tanner, United States Consul at Chemnitz, Germany, the citizens of this country have as yet no adequate idea of the real science of drinking. He gives the total beer production of the German empire for the year 1885 at 1,100,000,000, or one billion one hundred millions of gallons, and of wines and other alcoholic liquors, nine hundred millions of gallons, making a total of two thousand millions of gallons. This, the consul states, was the actual consumption in the empire, as the importations are equal to the exportations. The aggregate production for Germany he gives at forty gallons a year per capita, estimating the population at fifty millions. He gives the consumption in this country at ten gallons per capita. Consul Tanner further says:

"I have given this subject careful attention, and have stated the entire beer production of Germany, including Alsace-Loraine, and am sure of the accuracy of my figures. One can, then, form some idea of the enormous quantity of beer produced, when it would form a lake more than one mile square and six and a half feet deep, or it would make a running stream as large as some of our rivers.

"This is only taking into account one item in the economy of drinking in Germany. Wines and all kinds of spirituous liquors are freely used; wines to a much greater extent than stronger liquors. It may be safely stated that the consumption of all intoxicants in this empire would reach nearly two billions of gallons per annum. This being the case, some faint conception of the enormous drinking capacity of the Germans can be formed. The hops, barley, rye, potatoes, and other ingredients that enter into the manufacture of this enormous quantity of liquors would be more than two billions of pounds, and would form a good sized mountain if placed in one heap. Beer is the national beverage, and is used as such, if not to a greater extent than water, then assuredly equally so.

"Wines are used by the wealthier classes at meals, and very extensively used; but beer is never absent from a German table of the rich or poor, and it is a decided favorite with all true Germans.

"Since my arrival in Germany, I have to see the first glass of water drunk. Beer must be furnished servants for their repasts. I have seen children hardly weaned given beer without any apparent bad effect. . . .

"Science may be carried into everything. The science of drinking has been known and practiced in Europe for ages, and this is a science, simple as it may appear, when compared with the blind, irrational, and suicidal manner of drinking in the United States. This science consists simply in the tardiness of drinking. All drinks are taken sip by sip, a half or three-quarters of an hour being consumed for a glass of beer. This is so simple that one is liable to ridicule for laying stress upon it, and yet on this one point hinges, in my opinion, a question of vast importance to Americans. By this manner of drinking, the blood is aroused to a greater activity in so gradual a manner that there is no violent derangement of the animal economy. By slow drinking the German accomplishes the object of drinking, and gives his animal economy a chance to say, 'Hold, enough!' which only slow drinking will do. . . .

"Woman unquestionably carries a purifying influence with her wherever she goes, and her presence in the drinking places of Europe drives from them that class of low vagabonds that hang around American drinking places. Hence, one never sees a drunken man in a cafe, and rarely, even, on the street. Perhaps no better possible illustration of the purifying influences of woman could be found.

"Cafes are open to all classes, but the lower classes seldom visit them; they would be abashed by doing so as much as they would by entering a parlor where they would meet refinement and elegant manners. There are some exceptions to this rule in the larger cities, but this is confined to cafes that are well known, and ladies avoid them; but there are no drinking places in Germany but what a lady may enter with all propriety.

"Drunkenness is rare, and if so, it rarely manifests itself in a boisterous or belligerent manner, but more frequently takes the shape of song, fun, and a general pleasurable feeling of warmth, energy, and self-command, and hence those horrid crimes that sometimes shock us in the United States are rarely heard of here. Then, why should there exist such a difference in the evils of drinking in Europe and in the United States? It is manifestly the result of the manner of drinking in vogue in the two hemispheres."

Some curious inferences might be drawn from Consul Tanner's report. Figuratively regarded, the time wasted by the Germans in swilling beer at half or three-quarters of an hour per glass must be enormous; but then it is alleged to save them from intoxication. Can it be true the trouble of the Americans is they do not drink enough, and if they would only follow the German science in the matter, namely, quadruple their drinks and sit longer over their cups, they would, like the Teutons, become a quiet, sober, and happy people?

Economy of Heat.

The steamship Bleville, of Havre, recently built and engined by Messrs. Alex. Stephen & Sons, of Linthouse, is a steel screw steamer, 300 ft. long, and is fitted with triple expansion engines of 210 N. H. P. The principal novelty is in the design of the boilers. In the uptakes of these—Kemp's patent compound high and low temperature—tubes are so arranged that the water, before it enters the high temperature boiler, is heated by the gases from the fires, which would otherwise be lost. On her trials, the feed-water, which leaves the engine, and in ordinary cases enters the boilers at about 120°, was raised to about 360° Fah. The temperature of the waste gases on leaving the tubes of the ordinary boiler was shown by pyrometer to be about 630° Fah. This was reduced to about 300°, showing how much of the heat that generally is wasted is absorbed in this design.

To Recover Photo Silver Waste.

A. C. HOPKINS.

In common with most photographers, I have a small dark room, but because there is a sink and waste-pipe in the room, I do my toning there.

At the end of the sink I had, until recently, a large barrel into which I poured the first two or three washings from my prints, and to which I would occasionally add a handful of salt. When the barrel became full (which took a week or ten days), I put in more acid to clear it up, as directed in a circular issued by the refiners. But I found that it did not clear well, either because I used too much salt or not enough acid; and, drawing off the water before it had settled, I knew that I was wasting a great deal of silver. Then, too, a barrel of stagnant water, standing in a small room, is not conducive to health or comfort. So I decided to dispense with mine, and found a substitute in the following simple process:

After soaking my prints for five minutes in water made slightly acid by acetic acid, I remove them to another dish, and add to the water from which I have just taken them about a teaspoonful of salt, and stir it rapidly for a moment with the hand, when it becomes as white and thick as milk. This solution I then pour into a common wooden pail, which will hold enough water for the first washing of a hundred prints, and the next day, when I am ready to tone again, I find that my solution has become perfectly clear, and in the bottom of the pail I have a clear white sediment —pure chloride of silver. I then pour off the water to within an inch of the bottom, and the pail is then ready to be filled again.

I find that by adding salt to the second water in which I washed the prints, there is hardly a trace of silver, and it is not worth saving. About once a month I pour the settlings from the pail through a fine cloth to filter it, and throw the cloth and contents into the silver paper clippings. In this way I save more than half of the silver used in making the print.—*Anthony's Bulletin.*

Mineral Products of the United States, 1885.

The following condensed statement of the mineral production of the United States in the calendar year 1885 is from advance proof sheets of a report shortly to be issued by the United States Geological Survey. This volume will be the third of the series known as "Mineral Resources" reports, prepared by the Division of Mining Statistics and Technology.

Metallic Products of the United States in 1885.

	Quantity.	Value.
Pig iron, spot value.....tons	4,044,525	$64,712,400
Silver, coining value.....t. oz.	39,910,279	51,600,000
Gold, coining value..... "	1,538,376	31,801,000
Copper, value at New York city *a*.....lb.	170,962,607	18,292,999
Lead, value at New York city.....tons	129,412	10,469,431
Zinc, value at New York city..... "	40.688	3,539,856
Quicksilver, value at San Francisco...flasks	32,073	979,189
Nickel, value at Philadelphia.....lb.	277,904	191,753
Aluminum, value at Philadelphia.....t. oz.	3,400	2,550
Platinum, value, crude, New York city "	250	187
Total.....		$181,589,365

a Including copper from imported pyrites.

Non-metallic Mineral Products of the United States in 1885 *(spot values).*

	Quantity.	Value.
Bituminous coal, brown coal, lignite and anthracite, mined elsewhere than in Pennsylvania.....l. tons *a*	64,840,668	$82,347,648
Pennsylvania anthracite..... " *b*	34,228,548	76,671,948
Petroleum.....bbl.	21,842,041	19,193,694
Building stone.....		19,000,000
Lime.....bbl.	40,000,000	20,000,000
Salt..... "	7,038,653	4,825,345
Cement..... "	4,150,000	3,492,500
South Carolina phosphate rock.....l. tons	437,856	2,846,064
Limestone for iron flux.....		1,694,656
Mineral waters.....gal. sold	9,148,401	1,312,845
Natural gas.....		4,854,200
Zinc, white.....s. tons	15,000	1,050,000
Concentrated borax.....lb.	8,000,000	480,000
New Jersey marls.....s. tons	875,000	437,500
Mica.....	92,000	161,000
Pyrites.....	49,000	220,500
Gold quartz souvenirs, jewelry, etc.....		140,000
Manganese ore.....s. tons	23,258	190,281
Crude barytes..... "	15,000	75,000
Ocher..... "	3,950	43,575
Precious stones.....		69,900
Bromine.....lb.	310,000	89,900
Feldspar.....l. tons	13,600	68,000
Chrome iron ore..... "	2,700	40,000
Asbestos.....s. "	300	9,000
Slate ground as a pigment.....l. "	1,975	24,687
Sulphur.....s. "	715	17,875
Asphaltum..... "	3,000	10,500
Cobalt oxide.....lb.	68,723	65,373
Total.....		$239,431,991

a The commercial product, that is, the amount marketed, was only 63,569,284 tons, valued at $80,640,564.

b The commercial product, that is, the amount marketed, was only 32,265,421 tons, valued at $72,274,544.

Resume of the Values of the Metallic and Non-Metallic Mineral Substances produced in the United States in 1885.

Metals.....	$181,589,365
Mineral substances named in the foregoing table.....	239,431,991
	$421,021,356
Estimated value of mineral products unspecified.....	7,500,000
Grand total.....	$428,521,356

Ostriches at Los Angeles.

Within six miles of this beautiful place, on what is known as the old Temple street road, Dr. C. J. Sketchley has started an ostrich farm. He was one of the pioneers in ostrich farming in Africa, where he engaged in the business for many years, and is the author of a number of books on the ostrich and the best methods of ostrich farming. A visit to Los Angeles convinced the doctor that ostrich farming could be successfully carried on there, and he resolved to make the experiment. The result is the Sketchley ostrich farm.

On the sixty acres of land devoted to the ostriches there are thirty pairs of these beautiful birds, besides a number of young ones recently hatched.

Their food consists almost wholly of corn and alfalfa, which is a beautiful plant of the Luzerne family. Long experience has shown that this bill of fare will cause the ostrich to produce more feathers and of a better quality than any other diet. Each male is mated, and the two birds have two acres of ground. The land is fenced off into lots of one acre each. The two birds are kept in one of these lots until they have eaten off all the alfalfa, when they are transferred to the other, being thus alternated between the two. From the observatory tower in the center of the doctor's residence the ostrich grounds look like an immense chessboard, and the gigantic birds like the big pieces scattered over it.

"All the full grown ostriches you see," said the doctor, "I imported directly from Africa, landing them in this country at Galveston, and bringing with them four Madrasese men and one woman, the people of that tribe being more familiar with the ostrich than any native Africans. Thus far my experience has succeeded beyond my expectations. Not only are the ostriches quite as healthy as in Africa, but they are actually more prolific here than in their native country, both in the number of eggs they lay and the number of young ones they hatch, and also in the quantity of feathers they produce—results due, I believe, to this glorious climate, which seems greatly to increase the fertility of all animals. The feathers are fully equal in all respects to any grown in Africa.

"The height of the birds is from 8 to 12 feet. Their weight varies from 300 to 400 pounds. The male is much the larger, and is black, while the female is gray. Where, then, you will ask, do white ostrich feathers come from? They are found on both the male and female birds among the loose feathers of the wings and tail. It is the fact that they are so much rarer that makes them so much more desired, and, consequently, so much higher in price than black or gray feathers, for in some respects I consider them inferior to the other feathers.

"The female ostrich does not begin to lay eggs until it is four years old, but it produces its first crop of feathers at the end of its first year. Every seven months thereafter its plumage is ready for market, yielding about 25 of the very finest feathers, besides a large number of less valuable ones. The feathers are not plucked, but are cut off, quite close to the skin, with large shears made for the purpose. No pain whatever is inflicted in the operation. Within a few days after the feathers have been cut the stubs dry and shrivel to such an extent that they are easily removed. The longest and finest white feathers are worth at wholesale $4 apiece, and good feathers are worth $200 a pound. The first clipping of young birds will average $40 in value. Of course, it requires a good deal of capital to start a large ostrich farm, as a full grown pair of birds is worth from $700 to $800, and a single young bird six months old $200; but after it is once under way, the return from the investment is a large one.

"We very seldom permit the ostriches to do their own hatching, but most of it is performed by incubators. The old idea that ostriches seldom or never require water has long since been proved false. They drink frequently, and even bathe. We keep a water trough in each pen to enable them to do so. No one knows to what age an ostrich may attain, but I believe they are little short of immortal. In Africa I have seen a pair of birds that were known to be over 80 years of age."

I reminded the doctor of a promise he had made me to show me a foot race between ostriches. We immediately went to a broad open space between the ostrich pens and the house. One of the keepers opened the door of one of the pens, and in response to the doctor's call, two superb ostriches came running to him. After caressing the gentle creatures for a few moments he showed them a handful of figs, of which they are extremely fond. Two of his men then restrained the birds by placing nooses about their legs, until he and myself had walked away about a quarter of a mile. Then, at a signal from the doctor, the birds were released, and the race began. It was a rare sight. Ornithologists tell us that the stride of the ostrich when feeding is from 20 to 22 inches; when walking, but not feeding, 26 inches; and when terrified, from 11⅜ to 14 feet. It seemed to me that in this race for a handful of figs from their master, these gigantic birds covered the last-named distance at every stride. Like the wind they came, their great necks stretched forward and upward to their utmost length, and their wings working. They kept well abreast for nearly half the distance, and then one began to forge ahead. He increased his lead till within a short distance of us, when he turned his head, and, seeing that his competitor was considerably in the rear, he slackened his pace, and, jogging up to the doctor, received his reward in figs and caresses.

Besides Dr. Sketchley's farm there is another ostrich farm near Anaheim, a thriving town on the Southern Pacific Railroad, twenty-five miles from Los Angeles.—*N. Y. Sun.*

DECISION RELATING TO PATENTS.

U. S. Circuit Court.—Western District of Pennsylvania.

THE PENNSYLVANIA DIAMOND DRILL COMPANY *v.* SIMPSON *et al.*

Acheson, J.

The patents of Ball and Case, No. 247,872, dated October 4, 1881, and No. 248,982, dated November 1, 1881, are for inventions made by them prior to similar inventions made by Allison, and described in his patent No. 261,978, dated August 1, 1882.

Allison, in 1870, conceived of the invention described in his patent of 1882, and made rough sketches of the same, one of which is preserved; but made no model, and did not consider the invention worth putting into a permanent form, and has never since made the machine; he applied for his patent, at the instance of his assignee, after Ball and Case had applied promptly after invention and had obtained patents and had put the patented article on the market. *Held* that under these circumstances Ball and Case were prior inventors.

A mere conception not seasonably followed by some practical step counts for nothing as against a subsequent independent inventor, who, having complied with the patent laws, has obtained his patent.

One who has conceived of a new device and proceeded so far as to embody it in rough sketches, or even in finished drawings, cannot there stop and yet hold that field of invention against all comers for a period of twelve years.

It was sufficient to raise the question of priority of invention for defendants in their answer to deny that Allison was the original and first inventor, and to justify under the prior patents of Ball and Case without alleging an abandonment by Allison.

In an interference proceeding in 1873, upon a different invention of the same general character, Allison has testified to making the invention here in question; but this testimony did not constitute invention any more than did the previous sketches.

Letters patent No. 147,492, granted to G. Frisbee, February 17, 1874, for core lifters, declared valid and infringed by defendants.

Where the claim of the Frisbee patent was for the combination of an annular core lifter and a tube with an inner tapering recess, and the patent described a loose elastic cut ring within a tapering recess in a boring tube, and the defendants used a loose solid unelastic ring in a cylindrical recess in a boring tube, but this ring had four dependent springs with jaws, which engage with inclines at the lower end of the recess, and the purpose and mode of operation of the two devices were similar, the difference in the construction was not material, and the claim was infringed.

Where the suit fails upon one patent and prevails upon another, the complainant is entitled to a decree; but the costs are the subject of equitable consideration

Evil of Indorsing.

I affirm, says Judge Waldo Brown, in the *Boston Traveler*, that the system of indorsing is all wrong, and should be utterly abolished. I believe that it has been the financial ruin of more men than, perhaps, all other causes. I think that our young men especially should study the matter carefully in all its bearings, and adopt some settled policy to govern their conduct, so as to be ready to answer the man who asks them to sign his note. What responsibility does one assume when he indorses a note? Simply this: He is held for the payment of the amount in full, principal and interest, if the maker of the note, through misfortune, mismanagement, or rascality, fails to pay it. Notice, the indorser assumes all this responsibility, with no voice in the management of the business and no share in the profits of the transaction, if it prove profitable; but with a certainty of loss if, for any of the reasons stated, the principal fails to pay the note.

MR. T. V. CARPENTER, long and favorably known to many readers of this paper, died at his home, Newton, Mass., on October 17. Mr. Carpenter had taken up his residence at Newton quite recently, but had returned to New York on business a few days before his death, where he contracted a cold, which developed into pneumonia, which terminated his life. Mr. Carpenter was a conscientious Christian gentleman, very much respected by a large circle of friends and by all with whom he had business relations.