The Future of New York.

Mr. A. H. Green, formerly comptroller and park commissioner of New York, predicts that the town of Westchester, the whole of Kings County, of Flushing, Newtown, and Jamaica, in Queens County, and the whole of Staten Island will be absorbed in the corporation of New York, giving to the city an area of about 320 square miles, as compared with London with an area of 687 square miles. To effect this object, Mr. Green would remove all obstacles, open ways, build bridges, and make it cheap and convenient to live in New York. From the easternmost point of Staten Island to the northerly line of the city, being the southerly line of Yonkers, would be 33 miles. From the Battery to its extreme northerly line would be, say, 18 miles, and from the Hudson River to the easterly line of Flushing would be about 7½ miles. It cannot be kept too constantly in mind, says Mr. Green, that New York is, and is to be, the great manufacturing center of the American continent. Its domestic is probably three times its foreign commerce. No impediment should be placed in the way of conveniences for continuing the hold of New York on the great continental traffic which by all the rights of topographical advantages belongs to it. The Hudson should be bridged, of course avoiding needless obstructions to the waterway. The great continental railway lines must be afforded facilities in establishing their terminals there. Where capitalists are willing to embark their money to open new ways to the city, to bridging and tunneling the adjacent waters, they should be encouraged, not opposed by vexatious legislation. Within a radius of 25 miles from the Battery in Jersey there are more people to-day than in Brooklyn, more than in the whole State of Connecticut, and the day is not distant when the necessities of business and the convenience of administration will force a concentration of the various towns, cities, and villages within the above radius into one great municipality, with immense advantages for the accommodation of domestic traffic and with excellent water facilities.

Apropos to the above, Mr. Simon Stevens, a lawyer of some note in this city, is reported by the New York *Tribune* as saying: "It is a curious thing in the study of the world's history to see how the commercial center has shifted, from time to time, in a general course around the globe. You can go back to a time when Antwerp was the center of the world's commerce. Next Amsterdam held the threads of commercial venture. Then the center was shifted to Liverpool. Now it is London. Next it will be in New York. A careful study of the world's commerce at the present time gives sure indications that the power and prestige of England in her commercial relations is beginning to be shaken, while the commercial empire is drifting across the Atlantic to the metropolis of the new world." And as indicating what the powerful money kings of Europe think, ex-United States Minister Noyes reports that Baron Rothschild said to him recently: "The financial prosperity of the United States is without a parallel in the history of the world. You are drawing from all the treasuries of the old world to fill your own."

A Disinfectant Suggested.

The following circular has been posted in the office of the health board of this city:

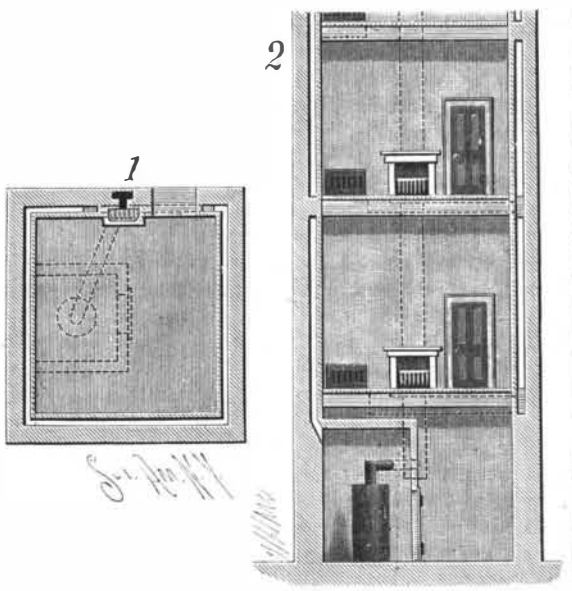
Experiments by the chemist of this department, Dr. E. W. Martin, warrant the belief that great advantage would result, in places suffering from yellow fever, from a free use of bromide in solution. It has a valuable function in destroying germs by oxidation. Bromine can be purchased at a cost of 37½ cents a pound, and is manufactured in a large way by William R. Shields, at New Philadelphia, Ohio. One pound dissolved in 100 gallons of water gives a disinfectant and deodorizer of great power, cheap enough to be used freely in ground sprinkling and street disinfecting. Health Officer Bayles is of the opinion that sprinkling two or three times a day in and about houses infected with yellow fever would have a very beneficial effect in checking the spread of the disease.

How to Kill Flies.

The *Louisville Commercial* states how a prominent druggist of Louisville hit on a novel scheme to get rid of the troublesome insect: "Bodine, a druggist in Louisville, runs a soda fountain, and everybody knows how the flies are attracted by the sirups, etc. The druggist was almost in despair at the swarms of these buzzing pests which made their rendezvous at his store. He dared not use the insect powder in the ordinary way, and the fly paper was too filthy to be considered. In the midst of his dilemma he accidentally discovered that the insect powder is of almost as rapid combustion as gunpowder, though the flame lives several seconds. By a further investigation he discovered that a portion of the powder, thrown from the bellows through the flame of a lighted match held six inches away, produced the required flame, and was capable of destroying flies by the million. He, therefore, puts out some bait for them every morning. When they have collected in sufficient numbers, he gets his powder and match, and the work of destruction is sure and swift. No guilty fly escapes the scorching of the wings. By this means all the flies in the store can be destroyed in a few minutes, and their flayed remains are dumped into the street by the gallon. In the same paper we are told that other soda fountain men have adopted the idea, and say it works like a charm."

A SYSTEM TO HEAT WALLS OF BUILDINGS.

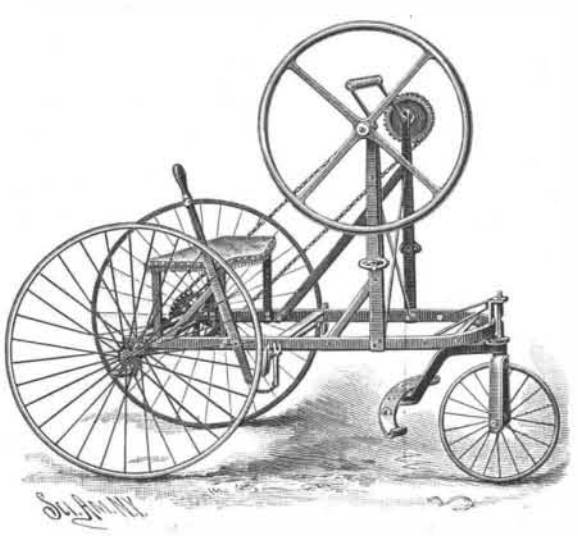
An invention designed to obviate the discomforts and difficulties arising from cold and damp walls, by heating the walls themselves, and thus transmitting the greater portion of the required heat to the air in the building, is illustrated herewith, and has been patented by Mr. John D. Parker, of Fort Riley, Kan. A series of flues or ducts are formed in the walls and communicate with the furnace in the lower part of the building, as shown in Fig. 1, the flues being carried around the apartments in the different stories in the body of the wall, as shown in Fig. 2. Grates are also placed in the various apartments to regulate the temperature, the greater portion of the heat being supplied by the wall flues and the remainder furnished by the grates. The several flues are arranged in series, so that the heated air passes from the furnace to the horizontal flues of the first floor, and after passing entirely around the first floor it passes through vertical flues to the second floor, thence around that floor and upward, and so on throughout all the stories of the building, at last discharging into the apartments of the upper floor.



PARKER'S MURAL HEATING SYSTEM.

AN IMPROVED TRICYCLE.

A tricycle designed to be easily operated and guided is illustrated herewith, and has been patented by Mr. Patrick Gallagher, of No. 145 East Forty-second Street, New York City. It has a light but strong iron framework, and is propelled by means of a crank handle mounted in arms adjustably pivoted to uprights on the frame, one of the ends of the crank handle having a sprocket wheel connected by an endless chain with a sprocket wheel on the axle of the driving wheels, while the other end of the crank handle has a fly wheel to steady the motion of the machine, and so that but little exertion will be required to run it after a high degree of momentum has been obtained. By removing or adding links in the chain, and the adjustment of the arms of the crank handle in the uprights, the machine is readily made easy of operation by persons with long or short arms. The guide wheel has its bearings in a fork having a post extending through bracket arms, and is adapted to be readily turned by a conveniently located foot board, the lever of a suitable braking mechanism extending up at one side of the seat.



GALLAGHER'S TRICYCLE.

Do Tools Grow Tired?

It is a common complaint among mechanics that their tools do not serve them as well some days as others.

A correspondent of the *Iron Industry Gazette* says: Tools, like men, grow tired. I have seen a first class chisel get tired and act as though it was possessed of the King of Sheol. It would not keep its edge, and the more I sharpened it, the sooner it would lose its edge.

I called the attention of a shopmate, a grizzled old veteran, to the peculiar behavior of the chisel. He looked it over and handed it back to me, saying: "The tool is all right, only a little tired. Lay it away and let it rest. It will come out all right again, just like a man who is tired." I did not believe the old fellow, and I really thought he was crazy to talk of a tool getting "tired," but as there was no help for it, the tool was laid away. I do not remember how long it was left to rest, but when it was again sharpened and used it appeared to hold its keenest edge as well as it did before it got tired. Barbers tell me their razors in constant use get tired in the same way, and woodchoppers say their axes sometimes seem to get soft all at once. Possibly constant and hard usage may cause changes in crystallization that would account satisfactorily for the peculiarity alluded to. Locomotive engineers often observe peculiar misbehavior in their machines, which may possibly be the result of continued heating, friction, and pounding. When a tool gets "tired," or a machine "balky," give each a rest.

[THE SWISS CROSS.]

Amber.

The only place in which amber has been found in paying quantities is in the Baltic Sea, and the vein extends from western Russia to Denmark, Norway, and Sweden. In former years the production of amber depended principally upon the storms occurring in the winter time, for when the sea was convulsed the amber lying on the bottom was thrown up on the shore; but human enterprise stimulated by the demand for the article has changed all this, and for the last twenty-five years various engineering appliances have been used for getting out the amber in the quickest and cheapest way.

The most profitable strata have been found in the Courischer Haaf, which is located in the vicinity of Memel, and there are twenty large dredging boats constantly at work day and night for eight months in the year. There are large strings of iron pails that are constantly dragging along the bottom of the sea, and bringing up the sand and what amber there may be in it. This is emptied on the deck of the ship, and there it is washed, and the amber picked out from among the sand and stone.

The little village where this industry is carried on is called Schwartzort. It is situated on a narrow strip of land that extends about ten miles beyond the mainland, and is perhaps a mile wide at its widest part. At one time this strip of land was covered with a forest, but the wood was sold off by a Prussian king in the beginning of this century to the Russians. The land has become barren since stripped of its sheltering forest, and now it is nothing but a sandy waste; and, were it not for the amber industry, this beautiful peninsula would be desolate. About ninety miles further west is another little village, called Palmnicken, and here the amber is obtained in an entirely different manner. The most approved diving apparatus is used, and the divers go out in rowboats, each of which is fitted with an air pump. They go down into the sea, where some of them remain as long as four or five hours. Each diver has a little bag around his neck, and a peculiar hook, with which he pulls up sand, and every piece of amber that he finds is thrown into his bag. An encouragement to the diver is that if he finds a piece of amber he is entitled to a prize of ten, twenty-five, or fifty cents, according to the size.

While the divers are below in the sea, engaged in hunting for the amber, the miners are just as busy on land, for it seems that the same stratum of the green-sand runs, perhaps for thirty miles or more, into the land. The opening of the mine is perhaps a thousand feet from the shore, and it is necessary to go down about one hundred and fifty feet, which is some thirty or forty feet below the level of the sea. To keep the mine as dry as possible, there are several pumps working day and night; and to prevent the earth from falling in, the passages are propped up by logs of wood. There are about forty miles of passageway in these mines, and there are about seven hundred men employed for the various departments. As soon as a passageway is opened, a track is laid, and on this track there runs a little truck, which holds perhaps half a ton of sand. The miners simply cut out the sand and fill the truck. It is then brought to the surface, where the whole contents is thrown into a long trough filled with rushing water, which separates the sand from the amber, which is caught by nets of various sizes. The amber is then cleaned by machinery, and assorted according to its quality and purity. The writer believes himself to be the first American who ever went down into the amber mine.

F. R. KALDENBERG.

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Keeping Tools.

Keep your tools handy and in good condition, remarks the *Manufacturer and Builder*. This applies everywhere, and in every place, from the smallest shop to the greatest mechanical establishment in the world. Every tool should have its exact place, and should be always kept there when not in use.

Having a chest or any receptacle, with a lot of tools thrown into it promiscuously, is just as bad as putting the notes into an organ without regard to their proper place. If a man wants a wrench, chisel, or hammer, it's somewhere in the box or chest, or somewhere else, and the search begins. Sometimes it is found, perhaps sharp, perhaps dull, may be broken, and by the time it is found he has spent time enough to pay for several tools of the kind wanted.

That habit of throwing every tool down, anyhow, in any way, or any place, is one of the most detestable habits a man can possibly get into. It is only a matter of habit to correct this. Make it an inflexible end of your life to have "A place for everything and everything in its place."

It may take a moment more to lay a tool up carefully after using, but the time is more than equalized when you want to use it again, and so it is time saved. Habits, either good or bad, go a long way in their influence on men's lives, and it is far better to establish and firmly maintain a good habit, even though that habit has no special bearing on the moral character; yet all habits have their influence.

Keeping tools in good order, and ready to use, is as necessary as keeping them in the proper place. To take up a dull saw or dull chisel, and try to do any any kind of work with it, is worse than pulling a boat with a broom, and it all comes from just the same source as throwing down tools carelessly—habit. Nothing more nor less. To say you have no time to sharpen is worse than outright lying, for if you have time to use a dull tool, you have time to put it in good order.

Explorations of the Gulf Stream.

The report for 1886 of the U. S. Coast and Geodetic Survey contains, in Appendix No. 11, a report of new explorations of the Gulf Stream, illustrated with maps, by Lieut. J. E. Pillsbury, U. S. N., which closes with the following conclusions:

I have to submit the following summary of my conclusions, based upon the information obtained during the two seasons' observations. The examination of the Gulf Stream currents having been made in March, April, May, and June, the conclusions may be incorrect for other seasons of the year, although there are no good reasons for supposing that such is the case except, possibly, in the amount of the variations.

1. Between Fowey Rocks, Florida, and Gun Cay, Bahamas, the current varies daily in velocity, at times as much as 2½ knots.

The greatest velocity is generally about nine hours before the upper transit of the moon. The variations are most excessive on the west side of the straits, and least on the east side.

2. The average daily currents vary during the month, the strongest set coming a day or two after the greatest declination of the moon.

3. The axis of the Gulf Stream, or the position of the strongest surface flow in passing this point, is 11½ miles east of Fowey Rocks lighthouse. The strongest surface current found here was 5¼ knots per hour; the least, 1¾ knots; and the average, $3\frac{6}{10}$ knots. The average current at other places on either side of the axis is as follows:

	Knots.
Axis of the stream, 11¼ miles from Fowey Rocks	3·6
3½ miles west, or 8 miles from Fowey Rocks	2·6
3½ miles east, or 15 miles from Fowey Rocks	3·2
10 miles east, or 22 miles from Fowey Rocks	2·8
17 miles east, or 29 miles from Fowey Rocks	2·4
24 miles east, or 36 miles from Fowey Rocks	1·8

4. The wind probably retards or accelerates the velocity of the current. A northeast gale in the Atlantic will probably "break up" the water of the stream, lowering its velocity materially, and afterward the flow will, by the reaction, be greatly increased over the normal speed. There is no evidence of any change in position of the axis of the stream due to the wind.

5. Two days' observations off Jupiter Light, Florida, indicate the same daily variation as was found off Fowey Rocks, and the axis of the stream at this section is probably about 17 miles east of the light.

The Size of the Spider's Thread.

I have often compared the size of the thread spun by full-grown spiders with a hair of my beard. For this purpose I placed the thickest part of the hair before the microscope, and from the most accurate judgment I could form, more than a hundred of such threads placed side by side could not equal the diameter of one such hair. If, then, we suppose such a hair to be of a round form, it follows that ten thousand of the threads spun by the full-grown spider, when taken together, will not be equal in substance to the size of a single hair.—*Leuwenhoek.*

North Atlantic Icebergs.

Icebergs are a great source of danger to transatlantic navigation from March to August every year. This is the season in which the expected proximity of these dread masses of ice demands from the mariner an increased vigilance. Sometimes, but very seldom, bergs have been fallen in with much earlier. On New Year's day, 1844, a berg was passed by the Sully in 45 N. 48 W., and this year, on January 3, one was reported in almost the same position. The northern ice barrier is broken up by the increasing power of the sun's rays as he travels northward along the ecliptic. Fields of ice, sometimes having an area of one hundred square miles, are detached, and a free exit afforded for the imprisoned icebergs. Icebergs and field ice are borne to the southward by the cold current that follows the bend of the land from Labrador to Florida. Field ice is formed on the sea surface during the Arctic winter, but bergs have their origin far inland, and are the growth of years. Greenland glaciers glide gradually down their gentle slopes into the sea, and the upward pressure of the water breaks off their snouts to form the icebergs of the North Atlantic. Some hardy Norwegians are about to cross Greenland, and intend to make a special study of the movement of the coast glaciers and this setting afloat of bergs. Ancient glaciers have written their story on the mountains of Great Britain, and bergs were formed a little way off the west coast of Ireland during the glacial epoch.

There exists a marked difference in form between the bergs of the two hemispheres. Arctic bergs are of irregular shape, with lofty pinnacles, cloud-capped towers, and glittering domes; whereas the southern bergs are flat-topped and solid-looking. The former reach the sea by narrow fiords, but the formation of the latter is more regular. It is well to give these splendid specimens of Nature's handwork a wide berth, for they frequently turn somersaults, owing to the wasting away of their immersed portions. Immense pieces of ice fell from a berg on to the deck of a ship that had approached too close to it while in this transitory state, carrying away her masts and maiming some of the crew. Again, ships have been sunk by colliding with submerged portions of bergs, extending from their visible volume like reefs of rocks from a bold sea coast. Hayes compared one that he saw to the Colossus of Rhodes. His ship could have sailed under the arch of ice formed in the heart of the berg.

North Atlantic bergs are neither so large nor so numerous as those met with in the Southern Ocean, between the Falkland Islands and the Cape of Good Hope. In 1854–55 an enormous ice island was drifting in about 32 S. 24 W. for several months, and was passed by many ships. It was 300 feet high, 60 miles long, and 40 miles wide, and was in shape like a horseshoe. Its two sides inclosed a sheltered bay measuring 40 miles across! A large emigrant ship, the Guiding Star, sailed into this icy bay and was lost with all hands. A similar, but smaller, mass of ice was met with in the North Atlantic by the Agra. She ran into a bay formed in the center of an iceberg, in 42 N., which was 1½ miles across, and she experienced great difficulty in beating out again.

A cubic foot of ice weighs about 930 ounces, but the same volume of sea water weighs 1,280 ounces. Hence ice floats on water, and but one ninth of the volume of a berg is exposed to view. There are several well-authenticated instances of bergs one thousand feet high having been sighted in the Southern Ocean, so that this would give the total height of them as about nine thousand feet!—a fairly good sized mass of solid water. In May, last year, the Inchgreen passed close alongside of a berg that Captain Miller estimated had an altitude of seven hundred feet above the sea surface, and was seven miles long. Bergs have often been seen grounded on the banks of Newfoundland where the deep sea lead gave a depth of 650 feet. Ross saw several stranded in Baffin's Bay where the depth was 1,400 feet.

Bergs are unusually numerous in some years, and a connection is said to have been traced between the frequency of bergs in the North Atlantic and the low temperature in our islands during the summers of some years. The ship Swanton passed three hundred bergs in 1842 in 43 N. 50 W. She narrowly escaped destruction during the night, as she passed between two huge bergs that almost grazed her sides. Captain (afterward Rev. Dr.) Scoresby, while whaling in the northern icy sea, counted no less than five hundred bergs under way for the open waters of the Atlantic. Last June the steamship Concordia passed seventy-eight large bergs in a short space of time, as they lay aground in the Straits of Belleisle. This year the ice is both late and scarce. In 1863 it was very abundant. No forecast can be made as to the probability of frequency of bergs. A vessel has been so firmly fixed in the ice in the month of March in 44 N. 45 W. that her master was able to take a stroll on the ice. In 1841 several ships, stopped by ice in mid-Atlantic, availed themselves of the opportunity to kill some seals that were basking upon it.

Bergs have been seen in the North Atlantic laden with lumps of rock, sand, and soil. The banks of Newfoundland would appear to have been formed in this way. Arctic lands suffer denudation by the inland ice as it creeps along toward the sea, and the bergs, separated from their parent glaciers, deposit the fragments at the bottom of the old ocean, there to harden into rocks and help in moulding the surface of the coast. Nothing is lost, nothing is new. In August, 1827, a berg was observed stranded in eighty-five fathoms in 46½ N. 45 W. Much earth and rock were embedded in its fissured sides. Polar bears and other Arctic animals were seen on the bergs of 1883. An abandoned ship was passed high and dry on a huge ice island in 1794, and a ship with her crew was seen similarly situated in 1845; but no help could be afforded.

On April 21, 1851, the brig Renovation passed an immense ice island, about ninety miles to the eastward of St. John's, Newfoundland. Two dismantled ships lay snugly upon it, but there was no sign of life. Captain Ommanney, R.N., was deputed to investigate this report, and took great pains to arrive at its truth, as it was inferred that these ships were the Erebus and Terror, of Sir John's Franklin's ill-fated expedition. Some people are still of the same way of thinking. The crew of the German discovery ship Hansa were compelled to abandon their vessel, crushed by ice, and took refuge on an immense floating mass of ice, where they remained for eight months. Their floating ice island was seven miles in circumference, and drifted south, until the poor fellows were able to make their escape. During this time they had lived in a hut constructed from the coal saved from their ship. H.M.S. Resolute was abandoned, embedded in the ice, but was picked up after a long drift southward. This ice-bearing current tends to make the American coast very cold, and, as we write, Sydney, C. B., is not yet open to navigation, although it is 7 degrees further south than Liverpool. The warmer water of the Gulf Stream, on the other hand, enables the whalers to get far to the northward, on this side of the Atlantic, and makes the mean temperature of Ireland in 52 degrees N. as high as that of American coast ports in 38 degrees N., 14 degrees nearer to the equator.

Many losses and casualties were caused by the ice in the North Atlantic last season. Masters should take frequent observations of the temperature of the sea, although it must not be relied upon as a specific indication. Warning may often be obtained by means of the echo given off from a berg when a steam whistle is sounded. No precaution must be neglected by those who navigate our floating palaces and ocean tramps, but the safest plan is to adopt a southerly route clear of bergs. The Etruria has followed this course in her fastest passages. Our Admiralty charts show the seasonable limits of bergs, and the United States Hydrographical Office issues charts every month giving the exact position of each berg up to the moment of going to press. Notices of bergs passed at sea should be forwarded to Washington immediately on arrival, and every berg reported to us will receive due publicity in our columns.—*Liverpool Journal of Commerce.*

The Growth of Luxury.

Prosperity encourages luxury; luxury is enervating, and encourages sloth; luxury tends to produce, and in the world's history has often produced, national decay. Now, the growth of luxury for the last half century has been very great and very general. We do not merely mean that the rate of living has advanced. This of itself is not necessarily to be deplored in any class, and in some classes is a matter for serious congratulation. That an agricultural laborer, for instance, should be able to procure more food, better clothing, better housing, and better education for his children than he could fifty years ago is a matter to rejoice over, and a state of things to secure by every proper means. What we mean is, that the scale of comfort deemed necessary by every class has enormously grown. And the tendency is ever upward. Young men beginning life try to start where their fathers left off. Some quarter of a century ago there was a discussion in the newspapers as to the prudence or otherwise of young persons in the upper classes marrying on an income of three hundred a year. Three times that income would be now considered inadequate by the critics who conducted the discussion. —*Quarterly Review.*

A New Nut Gall Ink.

According to the *Droguisten Zeitung*, an excellent (*ausgezeichnete*) ink is the result of the following formula:

Take of—

Powdered gall nuts	16 parts.
Gum arabic	8 parts.
Cloves in powder	1 part.
Sulphate of iron	10 parts.

Place in an earthen or glass vessel and add 100 parts of rain water, and let stand for eight to fourteen days, with frequent agitations. At the expiration of the time mentioned decant for use. *Der Pharmaceut* suggests that, good as the ink may be made after the above formula, it is improved by the addition of from 2 to 6 parts of Campeachy wood. One great advantage of this ink is that it can be thinned with water at any time without injury, and that it can be converted into a copying ink by the addition of 4 parts of glucose.

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