The sand, a clean-grained, slightly brownish sort, just such as a dishonest grocer might select for increasing the gravity specific or otherwise, of his sugar, comes from near Maidstone. There is no end to the quantity of it, and we believe it costs less than 3s a tun in the Thames. There are flints, enough for a hundred years to come, brought up from the chalk pits at Charlton; and the caustic soda and the chlorine of calcium, the latter a waste product of the soda manufacture, are bought of the wholesale chemists. The silicate of soda is made from the flints and caustic soda as follows: The flints are heaped upon iron gratings within a series of cylindrical digesters, of the material, size, and form, of small steam boilers A solution of caustic soda is then added; the digester is then closed steam tight, and the contents are boiled by steam of 70 lb., taken from a neighboring boiler, and led through the solution in a coil of iron pipes. The solution of caustic soda is prepared of a specific gravity of about 1,200.° The flints are dissolved into "soluble glass," and are drawn off in that state, as a clear though imperfectly liquid substance, which is afterward evaporated to a treacly consistency and color, and of a specific gravity of 1,700.°

The sand is completely dried, at the rate of two tuns an hour, within a revolving cylinder, through which hot air is forced by a centrifugal fan. A small portion of finely ground carbonate of lime, say Kentish rag, or even chalk, is mixed with the sand, the more closely to fill the interstices; and each bushel of the mixture is then worked up in a loam mill, along with a gallon of the silicate of soda. Thoroughly mixed with this substance, the sand has a sticky coherence, sufficient to enable it to be molded to any form, and, when well rammed, to retain its shape. if very carefully handled. In this condition—molded, of course, and any thing that can be done in founder's loam may be done in this sand, sticky with silicate of soda—in this condition it is ready for the solution of chloride of calcium. The instant this is poured upon the molded sand, induration commences. In a minute or so, we hardened little lumps of sand, so slightly stuck together by the silicate of soda that we could hardly keep them from falling to pieces within the fingers, into pebbles so hard that they might be thrown against a wall without breaking, and only a short further saturation was necessary to indurate them throughout. In other words, on the instant of contact, the silicate of soda and the chloride of calcium mutually decompose each other, and reunite as silicate of lime and chloride of sodium, the former practically indestructible in air, the latter, common salt, perfectly deliquescent and removable by washing, although the stone, after the washing, is impermeable to water. Plaster of paris does not set quicker than silicate of soda and chloride of calcium.

The chloric solution is first ladled upon the molded sand, and, the hardening going on, the objects are afterward immersed in the solution itself, wherein large pieces are left for several hours, the solution being boiled in the open tanks by steam led through it in pipes. This expels any air which may have lodged in tne stone, and possibly hightens the energy of union with the silicate.

After this the stone is placed, for a longer or shorter time, according to the size of the object, under a shower bath of cold water. This is not, by bathing, to convert it into Bath stone, although were the Bath stone a sandstone, instead of an oolitic formation, this name would do as well as any. The salt, or chloride of sodium, deposited throughout the interstices, is sought out and washed away, in brine, by the water, and were it not that a portion of undecomposed chloride of calcium was also washed out, this brine might be profitably evaporated for common salt. Now this searching out of the salt by the water would appear to prove that the stone was perfectly permeable, but, by one of those paradoxes with which chemistry abounds, the stone, when once freed from salt, is almost impermeable. The action is one which, if it can be explained at all, can only be explained as one of the phenomena of dialysis, as experimentally investigated by Professor Graham. There is no doubt whatever that salt has been deposited everywhere throughout the stone, no doubt that is is afterward completely washed out, and yet the stone as effectually resists the passage of water afterward as if it were granite or marble.

It is not necessary to describe the variety of objects that may be made in the new stone. It is practically a fictile manufacture, although not indurated by fire, and, unlike fictile goods, having no shrinkage or alteration of color in the making. Whatever the required size of the finished stone it is molded exactly to that size, with no allowance as in molding fire clay goods or in pattern making for castings in iron, The heaviest blocks for works of stability, and the most elaborately ornamented capitals, tracery, or copies of statuary may be made with almost equal facility. For any purpose for which natural stone has ever been used for construction or architectural ornament, the artificial stone will fitly take its place. Mr. Fowler has used it extensively in the stations of the Metropolitan Railway; Messrs. Lucas Brothers have used it with success in various works; several manufacturers at Ipswich and elsewhere have the bed stones of their steam engines, steam hammers, oil mills, etc., formed of the new stone. Mr. Ransome has molded a large number of Ionic capitals for the New Zealand post office, and still more richly embellished capitals, modeled from those of the Erectheum at Athens, for public buildings at Calcutta, beside a great amount of decorative work for English architects.—*Engineering.*

Novel Lifeboat.

There is now in process of construction at the yard of G. W. Alexander, in Philadelphia, a lifeboat of the ordinary form with detaching apparatus, and a peculiarity which was wanting in all the boats exhibited before the Commissioners. However successful each of them promised to be in keeping afloat in the most troubled sea, not one of them in any way insured its passengers from being washed away or submerged by a sea breaking on or over. This last desideratum, and not the least important one, this novel invention claims to supply. The boat proper is arched over by a light metal skeleton ribwork stretching from gunwale to gunwale, and there secured. Upon this frame work is extended a double covering composed of canvas and india-rubber, firmly secured to the boat. The double covering is capable of inflation, and thus renders the entire structure extremely buoyant. An opening in the cover, three feet by four, admits the passengers. This opening is around the mast, and by a peculiar arrangement can be hermetically closed when passengers and crew have entered. The mast, which is of metal and hollow, is used as a ventilator, and in conjunction with a small fan of simple construction and easy operation, serves as the means of producing two currents of air—one of foul air generated in the boat when tenanted, and another of pure air to take its place.

It is claimed for this boat that when completed, it can be prepared for launching as rapidly as any other; that owing to its not careening when weighed upon on either side, passengers will enter with safety; that it is certain to fall with its load as it ought to do from the davits, and that when on the sea, however tempestuous, it will be impossible to swamp it, being water-proof above and below. It is to be propelled by oars, passed out through apertures, so constructed as to admit of no leakage, and an arrangement in the cover permits a look-out to the steersman. This novel boat, in which, if practice will bear out theory, passengers can be rescued from shipwreck and sustained through the worst weather for many days, will undergo a test down the bay in a short time, where a severe trial will be made of the peculiar and valuable qualities she claims to possess exclusively.

For the Scientific American.

FLINT GLASS MANUFACTURE.

Knowing the deep interest you take in the manufacturing business and the working classes in general and with what readiness you receive in your columns anything tending to ameliorate their position, I would submit to you a few remarks on an important branch of our national manufacture viz. flint glass.

Recently I had occasion to consult a document showing the amount of trade carried on by France with Chili and Brazil. I was struck with the large quaniity of glass that country sends to our neighbors. Why should it be so? Is it the fault of our merchants or our manufacturers? The fault is more particularly with our manufacturers and we will try to prove our assertion in the following lines:

Let us see first what resources we possess. We have sand in abundance and of the first quality such as the Berkshire in Massachusetts and St. Genevieve in Missouri. Sand is also found in Virginia fully equal to the Berkshire, in South Carolina, Georgia, Alabama etc.

As to fire clay, besides the superior quality found in Cheltenham in Missouri, it is found in Kentucky, Virginia, South Carolina and Georgia, awaiting skillful hands to make it useful, when manufacturers will get so far over their prejudices as to give it a fair trial. Potashis at our door and lead is found in abundance in Missouri, Illinois, Iowa, etc. Wood and coal is plenty in several localities.

It will be noticed from the foregoing lines that Missouri is one of the states offering the most advantages for flint glass manufacturing, containing every material needed and in sufficient quantity to furnish glass to the United States, for centuries to come.

France has but little or no lead, it is brought from Spain and England: Potash is sent from this country: Sand is scarce and of inferior quality compared with that found in this country: Fire clay is dear as well as coal and wood.

What is there wanting to enable manufacturers here to compete with the French in supplying markets at our door? If we consult manufacturers they will say that labor is much higher here than in Europe; this is true, but nature has given us advantages that more than offset this difference.

The fault in our opinion is to be found somewhere else. First our wares are as a general thing too heavy and clumsy: moreover they are not in accordance with the taste of other countries, such as Brazil, Chili etc., where light and tasty wares richly cut are better appreciated. Our wares necessitate a large quantity of glass, fully double of what would be required in France for the same purpose. It is established here beyond a doubt that French manufacturers have kept their superiority in this style of wares, and know how to take advantage of it by having styles adapted to the taste and uses of different countries. Why should not our manufacturers do the same? Workmen here are not inferior to those of Europe, they are only waiting for the proper hands to guide them to obtain the same result, and moreover our heavy clumsy wares are an imposition and a tax on our consumers who have to pay for a large quantity of materials of no use to them whatever, this however yielded no larger profit to manufacturer. What can we do but grieve and bear it when we have no choice and a prohibitory tariff is now in force to protect a branch of manufacture in existence in this country for a number of years. In consequence, manufacturers are nearly entirely indifferent in adopting means to improve their business.

The principal fault is in the management: our want of system and control in order to remedy abuses, and in a word, in a wrong application of the productive forces.

In France the management is always entrusted to the hands of a superintendent capable of managing every branch of the factory, and under his immediate orders are placed the subaltern employes. It is indispensible for him to know every particular in manufacturing, from the buying of the materials up to the sale of the wares. It is evident that no one better than himself is able to establish cost prices. It is well to note here that the cost price of an article is of more importance than the price of sale, as competition can only be overcome by reducing the former. Cost price therefore, is the thermometer of the manufacturer; it shows him whether he is able to maintain competition, shows him the reasonable limit to which it ought to go; it is by its agency that an approaching failure in business is foretold.

French workmen in glass manufactories are paid as follows.—They have stated wages, varying according to the intellectual capacity and skill of each, but the cost price, of each article is ascertained before hand from an average taken of the quantity made by each set of hands, and if subsequently the amount of work performed exceeds in value the amount of wages paid, the amount of this excess is distributed among each set of hands according to a certain pro rata, in the shape of extra compensation, thus stimulating the workmen to do their best for their own interest and that of their employer; for this reason they would not suffer the management to remain in the hands of incompetent parties who would be impediments in the way of their interest. Glass blowers moreover, are well paid and well thought of in France. Besides their ample pecuniary remuneration they are certain to possess the esteem of their managers who can appreciate their capacity. This is one of the surest stimulants to increased production.

Flint-glass manufacturies excepting a few in this country, are generally managed as follows. Often times the manager of the factory is an individual who is completely ignorant of the first principles of the business, he therefore delegates his power to a foreman who may be better acquainted with intrigue than with the practical knowledge required of him, he is therefore at the mercy of his hands. At other times it may be an ex-blower who, though he may be an excellent workman, from the want of a general knowledge of the business, fails. In either case it follows that each hand is a sort of manager from the pot maker to the man at the grates, each of whom is supposed to have a deliberative voice in the management of the establishment. In such a state of things a consciencious and skillfull workman becomes indifferent and disgusted. It is a self evident truth that where order and good management reigns, every one contributes to the success of the establishment with his good will and skill; in a word, harmony is pleasing to all.

Having alluded to fire clay, above, being found in large quantities in this country let me say why this immense resource has not been made as useful as it should have been. Were it not for the intelligent discrimination manifested by a glass manufacturer, now of Philadelphia, Mr. W. T. Gillender, the utility of Missouri clay for pot making would be to this day a mooted point. Each glass manufacturer as is well known, manufactures its own pots for melting, and the pot maker is an important personage, at least in his own estimation, owing to the peculiar state of things existing. It is a noted fact that each factory pretends to have the best pots and the best pot maker, an opinion easily formed by those not acquainted with the properties of fire clay.

Let us suppose that clay is given to a pot maker, keeping him in ignorance of where it comes from, in order to avoid the splitting rock of his prejudices. Let him make a pot in his usual way. If the pot is not successful, he having learned his trade in the old routine, it is useless to seek a remedy from him, for let him tread out of his usual circle, he is lost and will not fail to charge the failure to the bad quality of the clay, and as I said before, his all-powerful opinion will shape that of his employer. The success of a factory depending especially on the good quality of pots, care should be taken and researches made by the manufacturer to attain the utmost perfection in this important branch instead of being dependent upon ignorant pot makers. This would not happen if the manager was well acquainted with this business; the success of this branch would depend upon him entirely. American clay properly prepared and well proportioned without addition of any other clay, is capable of making as good pots as those made from clay brought from Europe at great expense. J. P. Colne

Washington, D. C.

Correspondence.

The Editors are not responsible for the opinions expressed by their correspondents.

A Mechanical Question.

Messrs. Editors:—A gentleman in this section of country has been testing the draft of different wheel carriages to ascertain the most perfect construction that can be made to secure the ease of draft. His experiments show that 100 lbs. weight can be drawn up an inclined plane that rises four and a half inches in four feet, with 8 lbs. and 14 ounces draft and he expects to make the draft a few ounces less.

Be that as it may, the present development is a contradiction of correctness of scientific formulas upon which calculations are made. Not taking into account any allowance for friction, the formulas say that power is gained in proportion to the increased space through which it moves over that of the object moved.

According to the theory, four and a-half inches are contained in four feet, 10 and a little over $\frac{7}{10}$ times, which amount of hight the 100 lbs. weight is lifted, in moving four feet horizontally. Now if we divide the 100 lbs. lifted, by the draft of 8 lbs. and 14 ounces, it will be found that the draft is contained in the weight 11 and a little over $\frac{1}{10}$ times.

As much as 11 and $\frac{1}{10}$ is less than 10 and $\frac{7}{10}$ of 100, that much he has gained in power over what the popular theories in science says he could have gained, by the mechanical power up an inclined plane, added to this, he has gained the full amount of power that necessarily must be lost by friction Can you or any of your scientific correspondents explain this matter?

The gentleman alluded to, says that theories of science are wrong about not being able to create power by the application of the lever, and that the idea of creating power by moving through a greater space is only a coincident that attends the lever power by which it can be mathematically calculated. That it does not by any means follow that a gain of power is a necessary result of moving through a greater space. That an erroneous idea of the wedge being a mechanical power that could be mathematically calculated the same as the lever, has grown out of this mistaken theory.

To those who are disposed to treat his theory with contempt he can produce the ocular demonstration of the fact above stated, which to the practical man is much more important than fine spun theories. H. H.

Berlin, Wis.

[We see nothing strange in moving 100 lbs. four feet up an incline of four and a quarter inches by the weight of 8 lbs. 14 oz. provided the lesser weight is allowed space enough, an element which seems to have entirely escaped the attention of our correspondent. Is he not unnecessarily exercising himself about a problem which is solved every day in many ways?—[EDS.

Cleaning Marble.

MESSRS. EDITORS:—It may be of some value to telegraph operators, who have marble-based instruments and housekeepers who have marble-top furniture, to know that a common solution of gum arabic is an excellent absorbent and will remove dirt, etc., from marble.

First, brush the dust off the piece to be cleaned, then apply with a brush a good coat of gum arabic,about the consistency of thick office mucilage, expose it to the sun or dry wind, or both. In a short time it will crack and peel off. If all the gum should not peel off, wash it with clean water and a clean cloth. Of course, if the first application does not have the desired effect it should be applied again. C. G. F.

La Grange, Ky.

The Time Extended for Obtaining Patents in New Brunswick.

GENTLEMEN:—We forward you herewith notices of the granting of Letters Patent, to two of your clients, in the Province of New Brunswick. The new Patent Law for the entire Dominion will not come in force until after the meeting of the general Parliament some time during the coming Fall. In the meantime, by proclamation of the Governor General, under date of 1st of July, the present Lieut. governors of the Provinces are to hold office until further orders, and all existing laws to remain in force until repealed by new laws. The privilege of granting patents in New Brunswick, to foreign citizens, therefore still holds good, and will continue so until the passage of the new law. Any of your clients who may be desirous of securing their inventions, have therefore a few months left in which to do so. Of the provisions of the new law when passed, with reference to granting Letters Patent to foreigners, we have no certainty. Your clients had better take advantages of the present liberal law of New Brunswick, while the same is in force.

Your ob't serv't, L.

MESSRS. MUNN & Co., NEW YORK.

[Inventors desiring to avail themselves of the limited opportunity of obtaining patents in New Brunswick can have the business transacted through this office. Full information given on application to Munn & Co., office SCIENTIFIC AMERICAN 37 Park Row, N. Y.—EDS.

Delay at the Patent Office.

MESSRS. EDITORS:—Your appeals to the Commissioner of Patents to devise means so as to work up the accumulated business of the office, are well timed and just. As inventors pay the expenses of the concern, it is but just to them that promptness and dispatch should characterize the business transactions of the Patent Office. I have had a claim pending five months. How much longer I must wait remains to be seen. In a former patent I was twelve months in getting through to a finality. In reflecting over the delay I concluded that the efficiency of the attorney employed has much to do with the case. Having several more inventions for which I design making application for patents I have concluded, when I am ready, to try the editors of the SCIENTIFIC AMERICAN.

Some time ago I saw a notice of an invention to make glass from native ore, which the statement said had the tenacity of cast iron. Can you tell where it is made and the address of the manufacturers?

In a late number of your journal I see an article on the uses to which paper can be applied. Among them is that of making water tanks and pipes. If that branch is a success could it be used to advantage in the construction of pumps, that is, pump tubing? If so I would like to correspond with papier maché manufacturers. JOHN W. SHEAFFER.

Sterling, Ill.

[The inventors will be moved to hold an indignation meeting if a reform is not brought about pretty soon. The Patent Office was not established to yield a revenue to the government, and now when there is a surplus of money, it is a shame that it should be crippled in its efficiency.

The publication of our correspondent's inquiries will probably bring him in communication with the parties he desires to know.—EDS

Science Familiarly Illustrated.

Ventilation.

Look at an asthmatic sitting before an open window, regardless of the cold, though it be winter, with his chest heaving laboriously and his countenance expressive of exquisite anguish. What is the matter? Is he in pain? No. What, then, is the distress? It is simply from want of a due supply of fresh air. The spasm in his lungs not only prevents the free admission of air from without, but the free egress of that which is within, so that the air which is in the lungs is a mixture of foul and good air.

When so many died in the famous Black Hole at Calcutta, it was because the pure air was so shut out that they could not even get as much as the asthmatic does.

Here we have palpable results, and they startle us; and yet we may be suffering from day to day, in so small a way as to be imperceptible, the evil results of a deficiency of air, which may so accumulate as to impair the health, and even perhaps ultimately destroy life. It is only a few that occasionally lose their lives suddenly from want of air, but a comparatively slight but continuous deficiency in its supply is constantly destroying vast multitudes by a slow poisoning.

A good supply of fresh air is an imperative necessity. Such a supply it is easy to get when we are out of doors; but we do not get it when we are indoors unless we make special provision for it—or, in other words, unless we take measures to secure ventilation.

A proper supply of pure air in our habitations and places of public meeting *costs something*, at least in cold weather. That is the chief difficulty. Economy is in the way. Less fuel is required with defective than with proper ventilation.

A small room closely shut up is warmed at less expense than a large room with suitable inlets for fresh air, and outlets for foul.

The necessity for freeness in ventilation may be seen if we look at the amount of fresh air required for consumption. Each person requires a gallon every minute, that is fourteen hundred and forty gallons in twenty-four hours. It is easy to see that small and closely shut-up apartments, and large gatherings of people in public buildings, as they are ordinarily constructed, are incompatible with any such supply as this.

That you may see clearly what the necessity for ventilation is, observe what the lungs actually do with the air which they receive.

Pure air is composed of three gases, in certain proportions: oxygen, nitrogen, and carbonic acid; this latter being in very small quantity. These proportions are altered in the lungs, so that the air which is breathed out is different from that which is breathed in. It has less of oxygen and more of carbonic acid.

It is less vivifying by the loss of oxygen—that is, is thus negatively injured—and it has also acquired a positively bad character by the increase of the carbonic acid. Much increase of this renders the air palpably poisonous.

If, therefore, there be great lack of ventilation, as there often is in small rooms in dwellings, or in crowded public assemblies, much injury is done to the health by the diminution of vigor from the loss of oxygen, and by the direct poisonous influence of the added carbonic acid.

And if the exposure of these deleterious influences be frequent, there will inevitably be an accumulation of evil results, seen in a broken-down system, in positive disease, and at length in death.

Observe what provision is made in nature for the constant purification of the air, and how this is often more or less defeated by the arrangements of man. As oxygen is taken up in the lungs of all animals, and carbonic acid gas is sent forth from them, breathing is continually deteriorating the air. But this is remedied by a counter operation.

Every leaf that you see is doing just the opposite of what lungs do—it takes in carbonic acid and emits oxygen—so that there is an exchange going on between leaves and lungs. In this way the due proportion of the ingredients of the air is everywhere maintained, so that if the chemist examines air taken from various quarters of the earth, he always finds precisely the same proportions.

But this is true only of air that is free, and not of that which is shut up where there are sources of contamination. Wherever there is breathing going on, if ventilation be not properly attended to, there is a want of these natural proportions, and the deterioration is increased by fires and lights, for they, like lungs, use up oxygen, and return carbonic acid to the air.

There is still another important provision for the purification of air.

The three ingredients of the air are not of the same specific gravity. The carbonic acid gas is decidedly heavier than the oxygen and nitrogen, and therefore has a tendency to lie below them, as water lies below oil.

Now if this tendency were not obviated in some way, the carbonic acid, generated from lungs and fires and various decompositions, would accumulate all over the surface of the earth, pushing up the oxygen and nitrogen above it as water does oil, and would destroy life, and put out fires everywhere.

But this tendency is obviated by another—the tendency of gases to mingle together. It is just as the heavier water does not remain below the lighter alcohol poured upon it, but mixes with it. Agitation promotes this mingling, and therefore, in ventilation, the communication of motion to the air is an important measure, and should be accomplished so far as it can be done, without inconvenience.

There are other deleterious gases besides carbonic acid, produced in various ways, indoors and without, that are carried off by this same mingling and diluting process; but of these we will not speak, the carbonic acid being the most important.—*London Herald.*

London.

The growth of the town since the happy year when Londoners learned how, with proper accuracy, to count their own noses, presents us a record full of interest, and at the same time to us full of wholesome admonition to cultivate a grace rarely found in America—urban modesty.

In 1801 the population of London was	-	-	864,845
In 1811 " "	-	-	1,009,546
In 1821 " "	-	-	1,225,694
In 1831 " "	-	-	1,474,069
In 1841 " "	-	-	1,873,676
In 1851 " "	-	-	2,363,141
In 1861 " "	-	-	2,803,034

Taking the last census in each country as the standard of comparison, it appears that during the ten years preceding 1861 London added to itself a new city one half the size of New York, more than twice the size of Baltimore, nearly three times the size of Boston, more than three times the size of Cincinnati or St. Louis, and more than four times the size of Chicago. If the eight cities of Buffalo, Rochester, Albany, Pittsburg, Newark, Providence, Portland, and Milwaukee had been taken up bodily in 1861, put on shipboard, conveyed across the Atlantic, and deposited on the fringe of the skirts of London, they, with their united populations, would not have added to London so much as London quietly added to itself during the previous decennial period. Every twelve months a new city springs into being along the globous verge of London equal to the city of Cleveland.

Several years ago the metropolis, like some fabulous Cyclops, sprawled out upon its couch of 78,000 acres; but the original *city*, the venerable parent of this gigantean monster, is still content with that pigmy bed of 723 acres on which it has reposed for a thousand years. The *city*, though so small, is still the center of the trading, financial, and journalistic life of London, and has, it seems, a day population of 283,520 souls, and a night population of only 113,387 souls. Thus, every morning there come rushing into the city from suburb and rural cottage and country villa, to toil and get rich with in the narrow walls of the old city, 170,133 persons, while there are 509,611 customers and clients who enter the city every day to deal with them. What tremendous energy, then, must be in the systole and diastole of this Cyclopean heart, whose throb can suck in and expel every day along its veins and arteries a living stream of 728,986 human beings!

Every morning nearly a million of men make a rush to get into a space of seven hundred acres, and every night they make a rush to get out of it. No wonder that in addition to streets on the level of the houses they are compelled to build streets under the houses and streets over the houses, and that in a few years there must inevitably be three continuous cities of London—terrene London, subterrene London and superterrene London. But the swollen and congested state of the veins and arteries of the mighty town is not the only source of anxiety. What shall London do for lungs? A meeting assembled some time ago, under the call of the Lord Mayor, to consider the peril arising from the disappearance of commons and open spaces in the neighborhood of the metropolis. The meeting was addressed by Thomas Hughes and other gentlemen of note. Mr. Benjamin Scott, the excellent and versatile chamberlain of the city, said that in dealing with the question before the meeting they should not confine their calculations to 3,000,000 inhabitants. He found that in 1861 there were 3,322,717 persons living within an area of sixteen miles, taking Charing Cross as the center. An increase of population had been going on within that area during the past half-century at the rate of $19\frac{6}{10}$ per cent every ten years. In fifty years, at this rate, the population of the same area would be 8,532,000 souls. What would be their position fifty years hence if they were allowed only the radius at present supposed to be sufficient? He found that in 1801 the people were twenty yards from each other, in 1851 about fourteen yards, and in 1866 something over nine yards. If this diminution of space went on for fifty years more, they would be more closely packed than his audience were at that moment—in fact there would be no standing room for them.

We may get some impression of the present magnitude of London by looking at a few details of its colossal state. Its houses number more than 350,000, and its streets, if placed in line, would extend from Liverpool to New York, and are lighted at night by 360,000 gas lamps, consuming every twenty-four hours about 13,000,000 cubic feet of gas. Of the water supply 44,383,328 gallons are used per day. The traveling public sustain 5,000 cabs and 1,500 omnibuses, besides all the other sorts of vehicles which human need can require or human wit invent. Its hungry population devour in the course of every year 1,600,000 quarters of wheat, 240,000 bullocks, 1,700,000 sheep, 28,000 calves, 35,000 pigs, 10,000,000 head of game, 3,000,000 salmon and innumerable fish of other sorts, and consume 43,200,000 gallons of beer, 2,000,000 gallons of spirits, and 65,000 pipes of wine. As a consequence 2,400 doctors find constant employment. London, finally, supports 852 churches which are presided over by 930 divines of greater or less note.—*The Nation.*

THE NEW ISLAND.—One of the vessels of the expedition which sailed in search of our new insular possession in the Pacific returned to San Francisco with only part of her crew, and taking on board a large force of men set sail again on the next day, under a fishing license. Public curiosity is much excited as to what the new land contains that the explorers are so anxious to secure. The position of the island is 40° 31 north latitude and 151° west longitude, and the discoverer reports the land dotted with birds, and the water alive with seals and sea elephants.