

The Spring Outlook.

The *United States Economist and Dry Goods Reporter* of this city discovers, since the first of January, encouraging business prospects for the future. Values of all kinds of property have been adjusted to a specie basis, and the close of the first month of resumption finds more gold in the National Treasury than at its commencement, although \$25,000,000 have been paid out therefrom. This fact sets at rest the doubts that croakers originated about the failure of the Treasury department to continue to pay gold on demand, and assures the public that honest money is once more triumphant. The excess of our exports over imports for the year 1878 exhibits the gratifying balance of \$305,000,000, with every prospect of being further increased during 1879.

During the first three weeks of January, 1879, 9,000 packages of domestic goods have been exported in excess of the amount shipped from all other ports for the corresponding period of 1878. China, Japan, Mexico, and South America are cultivating with us closer commercial relations, and our cotton fabrics are finding in these countries a widely extended and rapidly growing market. Our breadstuffs and provisions are the chief articles of freight carried by the large fleet of steamers that almost daily leave our seaboard cities for European ports, and the shipments promise to assume such magnitude in the future that larger vessels of immense freight capacity are being constructed to accommodate this growing trade. The trunk lines of railway are being used to their full capacity in transporting the produce of the West to the seaboard, while the elevators in the chief cities of that region are crowded with grain waiting for cars to transport it East.

The recent large advance in railroad bonds and mortgages is an indication of the confidence felt by the public in their security as a permanent investment, while the rise in railway stocks also demonstrates clearly that the effects of the panic are rapidly disappearing, and that a new tide of prosperity awaits the country. Railroads were the first to feel the financial upheaval in 1873, and they also give the first sure indications of a commercial revival. Real estate is improving, and in this city vacant lots that could not have been sold at even a nominal price two years ago, have advanced in some cases 100 per cent within the last six months.

The great drygoods interest, which is larger than that of any other in the land, has before it an encouraging outlook. Prices of cotton and woolen fabrics, both foreign and domestic, are now so low that any change must be upward instead of downward. Merchants cannot lose by the wide fluctuation of values as heretofore. Incompetent and unsound concerns have generally been weeded out, a higher degree of mercantile efficiency and honor is being developed, and the business generally is passing under more systematic methods and control. There are 40,000,000 of people to be clothed, the chief portion of whom have made but limited purchases during the last five years, and now, with better times in view, will become large consumers of all kinds of merchandise. To the capitalist, banker, merchant, manufacturer, artisan, and laborer, there is the sign of a business improvement. It will be slow, but it will be steady and permanent. While Europe is threatened with social and commercial disasters, and distress and suffering prevail through declining trade, in the United States peace and plenty abound, and the business of the entire country is reviving on the solid basis of specie payments. We have had our disasters and trials; they multiplied for a time thick and fast; but having been led by a kind Providence safely through them, we enter upon a higher commercial destiny than we have ever known before.

American Goods at Sheffield.

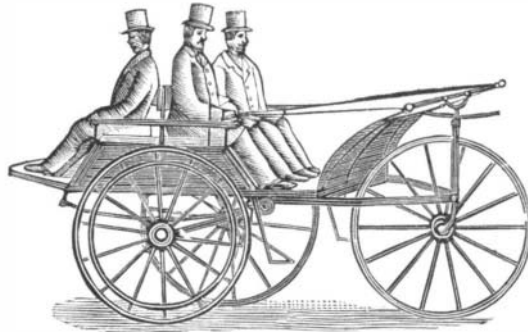
Some time ago we had occasion to call attention to a report by Dr. Webster, United States Consul at Sheffield, touching upon the subject of the sale of American hardwares in the town whence he wrote. The same gentleman has now forwarded a further report to the State Department at Washington, the subject matter of which will, no doubt, prove exceedingly interesting to the manufacturers of the town, as well as to hardware traders throughout the country. The consul states that there was at first a good deal of prejudice against articles of American manufacture, it being alleged that, although they might do well for a time, they would not last. These suspicions, Dr. Webster says, have been proved to be wide of the truth by the testimony of large importers, who have not only done well in the past, but are now doing an increasing business. As a means of furthering the connection, the consul warns his compatriots not to allow the quality of their wares to depreciate, inasmuch as "sharp and intelligent critics are watching our productions," so that American exports must be kept up to the highest standard. Having thus admonished his friends across the Atlantic, Dr. Webster gladdens their hearts by saying that the English people, having been accustomed to articles of a heavy make, will use the American lighter wares if really good.

As an example of the favor which certain imported goods have found of late years, the writer of the report instances the case of American hay forks, which were originally distrusted as being wanting in strength, whereas at the present time they are very much liked. So, at least, Dr. Webster tells us, and he grounds his observations in part on the circumstance that one Sheffield firm has sold over 2,500 dozen of these forks this season, and could have disposed of even more had they possessed the stock. American scythes and scythe-snaths, too, are coming into use, and the worthy consul tells his countrymen that "a large trade in them is looked for next year."

Leaving these generalities, however, the report next deals with specific quantities, and we are shown some of the details of the business done by one firm alone at Sheffield in various American articles. The figures given are so suggestively significant that we reproduce them here for the benefit of those skeptics whose doubts can only be removed by statistical evidence. Says the consul: "The following are some of the articles and quantities sold, viz.: 2,145 dozen locks, 14,676 iron planes, 1,185 dozen boxwood rules, 2,952 dozen hat and coat hooks, 220 dozen hammers, 572 dozen weighing machines, 2,520 screw wrenches, 230 dozen saws, 600 dozen drawer pulls, 1,680 dozen auger bits, 753 axes, 4,000 braces, 2,800 fretwork saws, 20 tons oil stones, 2,400 dozen axle pulleys, 32 dozen scythes, 250 dozen snaths, rakes, glass cutters, etc. Other firms are engaged in the same line of business, the aggregate of whose sales would be several times the above amounts. One dealer has imported goods to the amount of £7,000, consisting, among other things, of locks, spokes and rims, hubs, brackets, augers and bits, bench screws, tailors' shears, sash fasteners, hammer and axle handles, planes, spoke shaves, wrenches, hay forks, axle and frame pulleys." The aggregate value of all these goods would necessarily amount to a very considerable sum, which represents not merely the loss to Sheffield of that value, but of double the total given, inasmuch as not only have the local manufacturers lost trade to that extent, but they have paid so much for the goods from other quarters. Facts of this formidable aspect should furnish ample food for cogitation in the steel and cutlery capital, and ought to cause inquiries to be made as to how the invasion can best be met and repelled. If something be not done pretty soon Sheffield would appear to run the risk of becoming a mere distributing center for American and foreign hardwares, and her own staple industries may possibly fall into comparative desuetude. —*London Ironmonger.*

A NEW STEAM WAGON.

A new style of road vehicle, designed to be propelled by mechanical power, has made its appearance in London, England. The carriage closely resembles an ordinary dog cart; the shafts are very short, and incline together, meeting two feet in front of the dashboard; between them there is a third wheel, working upon an upright shaft, which could be turned by a handle placed the same as that of a bicycle. This handle is worked by reins, in the hands of the driver.

**NEW STEAM WAGON.**

The motive power is obtained by the combustion of benzoline, a small jet of which is admitted into the burner. It is then set on fire, and is completely consumed by a current of air, which, until the machine is in action, is produced by turning the small handle already alluded to. The burner, about the size of an ordinary chimney pot hat, and quite as elegant, is lined by coils of a copper tube containing water; this tube is calculated to bear 2,000 lbs. on the square inch, and in working only receives 60 lbs.; so that practically it is not likely to burst, and, if such an accident did occur, the results would not be serious, as the whole tube only contains a pound of water. The steam generated in this tube passes at one end into the cylinders of a small torpedo engine, which rotates a horizontal shaft; it then passes into a cooler, where it is condensed by the effect of a current of cold air driven against the outside of the vessel by a revolving fan, and the water so produced is forced back into the other end of the tubular boiler by a force pump; hence there is not the slightest escape of steam, nor is there any smoke, as the benzoline is entirely consumed by the current of air. The revolving engine shaft works the driving shaft, not directly, but by the medium of two cones placed side by side, their bases being reversed in position. A figure of 8 band connects the two, and, as it is moved toward the base of one it nears the apex of the other, and thus increases or diminishes the speed of the driving shaft, which is connected with the driving wheel, or off wheel, by an endless band. —*London Field.*

American Cheese in England.

A Somersetshire dairyman, writing from England on American cheese, concludes his communication as follows: "It seems to me that unless there be some stir and a great improvement made in the general average make of our cheese, we must give up cheese making, and quietly allow the American, who is over 3,000 miles distant, has a more difficult climate to contend with, and the extra cost of boxes and carriage, to beat us out of our very boots. Let dairy farmers use their eyes, and they will find this persevering Yankee opponent pushing his cheese into every little shop both in our towns and villages, and even hawking them to our door, while we are holding our cheese because he sells a

better and cheaper article. At two factors' stores in our neighborhood, where I saw the other day a pile of American cheese, I was told they were obliged to have them, as every one was inquiring for them, while my cheese, which I admit are not best, although better than a good many dairies, are not wanted."

American Goods in Australia.

The *Echo*, published at Sydney, tells the Australians that it is enough to set a reflective man thinking to see the almost universal use now being made, in almost every handicraft, of tools of American manufacture. The limit of ingenuity, says the editor, seems to have been reached in England. Such firms as Elkington & Co. are being entirely cast in the shade by the Tiffanys and similar firms of America. If there is any labor-saving, novel, ingenious instrument invented, from a sewing machine to a needle gun, ten to one but it comes from the fertile brain and skillful fashioning hand of some clever American inventor. To leave Edison's marvels alone, look at the wonderful machines now elaborated to save labor in agricultural work. The reaper and binder, and a host of others, will suggest themselves immediately. Our bushmen work with American axes, the very handles being of a new Yankee pattern. We ride in American buggies, lounge in American chairs, and get weighed in American weighing machines. American inventions for domestic purposes—from the washing, wringing, potato and apple paring, churning, and other housework machines, down to the latest dodge, a self-weighing cheese knife, are the wonder and delight of our housewives. In the workshop their marvelous self-adjusting planes, screws, chisels, and splendid tools of all kinds are entirely ousting the old-fashioned productions of Sheffield. It is high time technical education and schools of design were established, or Yankee ingenuity will entirely beat us out of the market. As one of their own writers puts it: "One of the principal reasons for the success of the American manufacturers abroad is the adaptability of American mechanics. They are not only thoroughly competent to make anything that is required, but they can also design tools for any conceivable purpose. They can make machinery for any work whatever, and they are always ready to learn. They do not think that theirs is the only way in which a thing can be done. It is the versatility of American mechanics that pushes their products on the foreign market."

Australian Competition.

At a recent meeting in Melbourne of the principal Australian meat preserving company, it was stated by Sir Samuel Wilson that the meat then in course of packing in the tins cost "a farthing less than nothing per sheep;" or, in other words, that the sums realized from the sale of the skins and tallow were sufficient to cover, or rather more than cover, the original prime cost of the animals. It follows that the cost of the tins in which the meat is packed, and the expenses attending its cooking and shipment, are the only charges which the preserved meat has to bear.

Commenting on these facts the *British Farmer's Gazette* remarks that "American preserved meats have lately been running the Australian produce very close in the English markets; but the invention of machinery which enables twenty-four tins to be packed in Melbourne in the same time in which one tin is filled by hand in Chicago ought to enable our colonial brethren to distance all competition."

Is it true that Melbourne is so far ahead of Chicago in the use of machinery? If so, our American inventors will have to lend a hand. It will not do to be beaten so easily.

The Ice Crop of the Hudson.

The ice crop of the Upper Mississippi is very great, and the same is true of other northern rivers from Minnesota to Maine; but the probability is that more ice is taken from the Hudson than from any other stream or body of water, not only in the United States, but in all the world. The harvest this year has been the most successful ever known, both as regards quantity and quality. The total capacity of the ice houses along the Hudson exceeds 2,000,000 tons. These have been filled to overflowing with ice of the finest kind, and upward of a million tons in addition have been stocked for early consumption.

During the gathering time over 10,000 men, nearly 2,000 boys, 900 horses, and 100 steam engines, were employed in getting in the crop. The pay of the harvesters has ranged from \$1 to \$1.75 a day. The season began the first week in January, and continued throughout the month.

Original Advice for Drinkers.

Barkeepers in this city pay on an average \$2 per gallon for whisky. One gallon contains an average of sixty-five drinks, and at 10 cents a drink, the poor man pays \$6.50 per gallon for his whisky. In other words, he pays \$2 for the whisky and \$4.50 to a man for handing it over the bar. Make your wife your barkeeper. Lend her two dollars to buy a gallon of whisky for a beginning, and every time you want a drink, go to her and pay 10 cents for it. By the time you have drunk a gallon she will have \$6.50, or enough money to refund the \$2 borrowed of you, to pay for another gallon of liquor, and have a balance of \$2.50. She will be able to conduct future operations on her own capital, and when you become an inebriate, unable to support yourself, shunned and despised by all respectable persons, your wife will have enough money to keep you until you get ready to fill a drunkard's grave.—*Lecture of C. T. Campbell at Maysville, Ky.*

Car Drivers' Maladies.

While assistant sanitary inspector of the New York Board of Health, Dr. A. McLane Hamilton made a special study of the maladies incident to the work of street car drivers. The most common, though not the most serious, of car drivers' maladies was found to be chilblains, from which not one in ten of the Third Avenue drivers escaped. The car driver invariably stands at his work, and his feet and legs are inevitably chilled by inaction and exposure. The impeded circulation of the blood due to long standing brings on a train of symptoms to which chilblains are a trifle. Even in warm weather a few weeks' driving is almost sure to bring on a swelling of the legs, with persistent pains in the feet, followed by numbness in the legs and ultimately by partial paralysis.

The doctor finds two immediate causes for this lamentable state of things: first, the constant gravitation of the blood and other fluids to the lower extremities; second, the drivers' habit of standing with their weight thrown on their heels.

The result is, says Dr. Hamilton, that the perpetual jar and jolting of the car are transmitted by direct vibration along the bones of the leg and thigh to the spinal column that continues and rests on them. In the first stages of the disease resulting from this source the man becomes irritable and nervous without being able to assign any reason for it. A little later he has dull pains in the lumbar region, and an intolerable sense of weight in the legs. The immediate cause of these symptoms is congestion of the spinal cord and its meninges, the disease being, in point of fact, a species of meningitis that seldom proves fatal in itself, but is the precursor of other nervous maladies of a more serious complexion.

In the course of a pretty careful canvass among car drivers, to test the correctness of Dr. Hamilton's statements, a writer for the *New York Times* says that he found scarcely a single driver of five years' standing who did not confess to wearing bandages, or to being subject to very considerable inconvenience from the symptoms of varicosity and spinal irritation, and medical men who have the largest practice with people of this class, express doubts whether a car driver's average term of service exceeds seven years.

We are confident that it would be no difficult thing to devise a seat for car drivers, with a brake lever, so that they could drive and manage the car while sitting. With the utmost consideration the car drivers' position will be severe enough. It is sheer cruelty to subject them to needless discomforts.

Disinfection by Cold.

In a letter to the Congressional committee on the subject of epidemic diseases, having special reference to yellow fever, Mrs. Elizabeth Thompson states that the designs for a refrigerating steamer by Professor John Gamgee, of London, England, are far advanced at the Navy Yard, but it will require at least three months from the date of signing contracts to construct this life-saving ship and its machinery.

It is intended that this steamer shall proceed to New Orleans, as the port most threatened, and there try the effect of extreme cold in the disinfection of ships coming from infected ports. Mrs. Thompson says:

"The Board of Experts [authorized by Congress to investigate the yellow fever epidemic of 1878] declare that 'ships are especially dangerous,' and 'remain sources of infection for months after having been infected with the poison;' that 'yellow fever poison is not able to withstand the influence of frost, and when exposed to a freezing temperature it is rendered innocuous and is probably destroyed;' that 'if the apparatus and experiments now projected for the utilization of extreme cold for this purpose should be found to be of practical application to the disinfection of the holds and other parts of vessels, their success would prove to be a sanitary acquisition of inestimable value.'

"The losses to this country by yellow fever 'have been variously estimated at sums ranging from \$100,000,000 to \$200,000,000,' and it has been computed that New Orleans alone suffered to the extent of \$15,335,000. Millions have been spent in ships of war, and I earnestly hope that the opportunity we now have of testing nature's great preventive for yellow fever—cold—may be taken advantage of with promptitude and liberality."

The experiment would seem to be worthy of a trial, and, properly conducted, would be comparatively inexpensive. In the hands of a practical Yankee an ordinary tug-boat could probably be fitted out with refrigerating apparatus sufficient to test the question inside of a fortnight.

Transmission of Power at Rock Island Arsenal.

The experimental line of water power machinery with cable transmission, devised by Col. D. W. Flagler, for the Rock Island Arsenal, is said to work admirably. The full plans of Col. Flagler embrace 40 65-inch turbine wheels, working on two separate shafts, 20 wheels to a shaft. But now only four of these turbines are in place; the shaft is 9 inches in diameter, and 100 feet long. On the shore end of the shaft there is a driving pulley 15 feet in diameter, which receives a wire rope three fourths of an inch in diameter, which ascends to a tower and continues on to the shops. There are six spans of transmission, each span 400 feet in length, making the distance from the dam to the south row of shops 2,400 feet, almost a half mile. The ends of these spans are station towers of trestle work, each 40 feet high, these stations consisting of receiving and driving pulleys, each 15 feet in diameter. On one of the towers the cable

turns at right angles by means of bevel gears. The four turbine wheels now being tested yield 240 horse power; and there was not a hitch in the whole length of the cable and machinery. This force will be used this winter for the shops. The great dams, the water power canal, and the minor parts of the work, have cost about \$1,000,000. The pen stock is entirely of iron; and the turbines are so placed on the shaft that the stoppage of one by driftwood or otherwise will cause no derangement of the others.

The Adirondack Survey.

The reorganization of this survey, made necessary by legislative action last winter, has been successfully carried out; and the work accomplished during the past season is reported to be more than usually extensive and satisfactory. Many valuable scientific and geographical results have been obtained. A large number of the higher peaks have been measured with level and rod, and hundreds of miles of levels have been completed, covering the portions under survey with stations and permanent rock bench marks. The corners of counties have been marked, and county and town lines located. The chief rivers and lakes of the wilderness have also been surveyed throughout their whole extent.

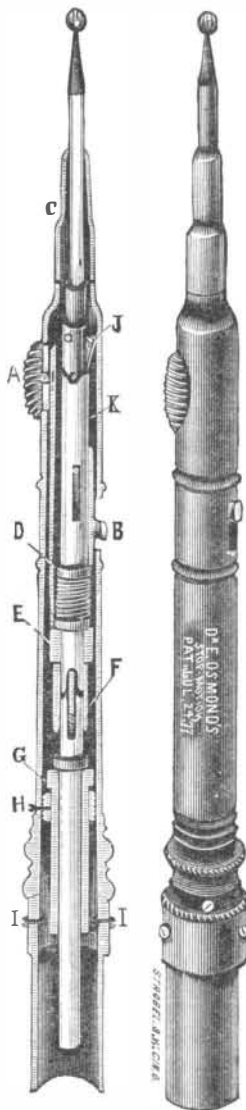
STOP MOTION HAND PIECE FOR DENTAL ENGINES.

The advantage of being able to instantly stop the revolution of a dental burr, drill, or disk, must be obvious to every operator. Since the introduction of dental engines it is an easy matter to cut away the substance of the tooth so as to expose a nerve or unduly enlarge a cavity. To obviate such accidents, Dr. E. Osmond, of Cincinnati, O. (S. E. corner 8th and Elm streets), has perfected a stop motion hand piece for dental engines.

This instrument was recently patented and is now being brought to the notice of the dental profession. The hand piece is shown both in perspective and in section in the engraving.

The button, A, when pulled by bending the fore or middle finger, moves the arm, D, and the ring, E, which carries the clutch, F, downward out of engagement with the notched upper portion of the shaft, instantly breaking the connection and stopping the burr or drill. On removing the finger the parts regain their normal position and the drill is again set in motion. The instrument has a simple and effective drill holder, provided with a retaining spring, J, which may be exposed to view by drawing back the trigger, B. By pulling back the finger piece, A, and trigger, B, simultaneously, the drill may be changed while the engine runs.

Any of the well known dental engines may be used in connection with this instrument. Suitable means are provided for compensating for wear, and the finish is consistent with the use for which the tool is designed.

**Chlorophyll as a Coloring for Preserved Vegetables.**

At a recent meeting of the French Society to Encourage National Industry an important paper was presented by M. Personne on a process now being used in France for the preservation of vegetables in their natural green color, the process being based on the substitution of chlorophyll for the poisonous salts of copper formerly employed for this purpose.

The present process of preserving vegetables is that of Appert, made known at the beginning of this century. The industrial application of this process requires two operations, the first called washing, and the second, boiling. Washing consists in immersing the vegetables in boiling water for about five minutes, and then suddenly plunging them in cold water. Boiling is effected by placing the washed products in earthen vessels (or, better still, in hermetically sealed tin boxes) and exposing them to a temperature of 120° in steam boilers. It is readily seen that, after the operation, although the vegetables still retain their natural taste, they have lost their natural color and have become of a yellowish tint. The consumer, however, is not satisfied with the preservation of the taste alone; he also desires the additional satisfaction of having his eye pleased with the beautiful green color that the fresh vegetable possessed. As the export trade in these products is immense, it becomes absolutely necessary to accede to this demand, and so an artificial coloration has hitherto been effected by means of the salts of copper—principally the acetate and sulphate—added to the water in which the vegetables are washed. To the use of these metallic salts, however, there are many grave objections; and not the least

of these is that of their poisonous nature. To find some means of doing away with the use of these toxic agents, by the substitution of some harmless matter, became the object of long and serious study to Professor Guillemore, of the University. He found at length, by experiment, that the less the quantity of chlorophyll in the vegetable the more rapidly and completely did it disappear on boiling; and that the fibers of the vegetable put in contact during boiling with soluble chlorophyll become saturated with it at a temperature of 100°; and finally, that the vegetables saturated with this chlorophyll, during the operation of washing, preserve and retain this color thereafter during boiling. After many experiments, the following has become the industrial process of fixing this chlorophyll coloring in a definite manner:

Spinach treated with a solution of soda gives up to the alkaline solution the chlorophyll, which it contains in large quantity; this alkaline solution is neutralized by hydrochloric acid added to the water in which the vegetables are to be washed. The chlorophyll, set free, unites with the vegetables, and this addition to the color which they naturally possess allows them to preserve their deep green tint, which otherwise would be destroyed by the boiling. The process, which is simplicity itself, has the immense advantage over the old one, that it introduces no injurious element into the preserved vegetables; indeed the products employed—chlorophyll and chloride of sodium—are such as make part of our daily food supply.

A Novel Temperance Society.

An association has been incorporated in this city, to be known as "The Business Men's Society for the Encouragement of Moderation." The purposes avowed by the society are to encourage moderation in the use of alcoholic beverages, to promote a knowledge of science and statistics relative to the manufacture and sale of alcoholic liquors, to disseminate among the people useful information regarding the principles of moderation and the means of carrying such principles into practical effect.

The society is also to exert its influence to induce retail liquor dealers to provide for teetotallers stimulating and nourishing beverages which contain no alcohol, and to encourage the establishment of places of cheap recreation and amusement where no intoxicating liquors shall be sold.

The pledges to be provided by this society are of three sorts: A total abstinence pledge, operative for one year, and renewable thereafter at the will of the pledger; a moderation pledge, binding the person who takes it not to drink during business hours; and finally, a unique engagement meant to prevent the person taking the pledge from partaking of intoxicating liquors at the expense of another person, and from extending an invitation to any other person to drink at his expense.

Utah Mineral Wax.

The great deposit of mineral wax, or native paraffine, lately discovered in Southern Utah, is described by Professor J. E. Clayton, of Salt Lake City, as occupying an area 60 miles long by 20 miles wide, and in some places forming a bed 20 feet thick. It contains more or less clay in seams and layers; but this is readily eliminated by melting, the earthy matter settling and leaving the paraffine nearly pure. It is quite black in the mass, but the sections are translucent. The quantity is said to be enormous; so great, indeed, that it cannot be controlled by any individual or company, but must prove a source of wealth to whole communities.

Professor Henry Wurtz pronounces the mineral to be zietriskisite, and says that it differs from paraffine by being insoluble in ether, and otherwise. Professor J. S. Newberry finds the specimens brought by him from Utah to be true ozokerite, and similar in all respects, except color, to that from Galicia; a true paraffine, melting at 60° C., and being soluble in ether.

As to the origin and geological relations of this remarkable bed of paraffine—which, so far as known, is without parallel in quantity in the world, and is as much of a "wonder" as our basins of petroleum—Professor Newberry cannot speak with any confidence until he has visited the locality where it occurs, as he hopes to do in a few weeks. He suspects, however, that it will be found to be an evolved product, the distillation of beds of cretaceous lignite, and the residue of a petroleum unusually rich in paraffine.

Coal Bunker Defenses.

The British naval authorities have been making experiments for some time with the view of testing the power of resistances to heavy shells of coals in the bunkers of men-of-war. The latest tests at Portsmouth seem to indicate that loose coal is the most effective means of protection yet discovered, and in the case of light, unarmored, or only partly armored vessels, the bunkers are built around the machinery. In the case of the Oberon it was proved by actual experiment that a shell from a sixty-four pounder at two hundred yards would neither penetrate the coal nor set it on fire.

High Temperatures.

By concentrating the electricity from a 13 horse power machine into the space of half an inch by inclosing carbon points in a block of lime, Mr. Edison claims to have produced the highest temperature ever reached by artificial means. When dropped into the flame, pieces of iridium, one of the most refractory of metals, volatilized immediately. A small screw driver passed across the flame would be cut in two, the part touched by the heat melting instantly. Even parts of the lime crucible fused under the intense heat.