Correspondence.

Remedy for Ants.

To the Editor of the Scientific American:

In reply to Mr. C. T.'s request about "Ants," July 5, 1890, SCIENTIFIC AMERICAN, desire to state: Buy one-half pound or more corrosive sublimate, powder it very fine, and strew the same sparingly on the ground about the India rubber tree, also in the crevices, nests, and trails of the ants, and I guarantee the ants will leave your lawn and premises as quick as they have come. Corrosive sublimate is a deadly poison, and should be handled with care. F. H. C. MEY.

Buffalo, N. Y., July 6, 1890.

Estimating the Cost of Building.

A correspondent (H. C. R.) in *The American Builder* gives the following short way to estimate the cost of a plain house.

I first commence with the excavation.

Each cubic yard of dirt to be left on lot as thrown out, 20 cents. All sand and clay to be used by contractor free that is found in cellar and trenches.

Stone to be of freestone rock work, face 25 cubic feet to the perch, at $3.50 a perch.

Cellar, 12 by 24, to cost:

Grates, $1 each.

Outside cellar stairs, complete with doors, $6.

Now, the lower floor, joist, bridging, flooring and time, each square, $12.

Second floor, the same a square, $12.

Upper tier of joist, lumber and time, per square, $2.

Roofing, per square, rafters, lath, sea green slate and time, $7.50. Coping, per foot, 10 cents. Chimney backs, each back, 75 cents. Flashing, per foot, 8 cents.

Cornice.—Plain cornice, per lineal foot, flooring, fillet and time, 15 cents.

Siding.—All sides where siding is to be used, siding, studding and time, per square (10 by 10 feet makes a square), $3.60.

Partitions.—Studding and time, each square, $1.75.

Box stairs.—Each flight (no rail), lumber and time, $12. With rail and baluster at landing, $19.

Doors.—Door frames, doors No. 1, locks and butts, casing and time, each door, $6.50. No. 2, $5.50. Front doors and transom, $10.

Windows.—Each window, sash and glass, $6.50; frame, casing, time and locks, $5.

Base.—Each room, lumber and time, per room, $3.50.

Pantry.—Shelves, common way, lumber and time, from 6 to 8 shelves, $4.

Wainscoting.—Per lineal foot, time and lumber, 20 and 25 cents.

Spouting.—Per foot, put up, 10 and 11 cents.

Veranda.—Per foot, face measure, turned posts, brackets, tin roof and spindle work, $3.50 and $4.

Chimneys.—Per foot, 75 cents, 90 cents and $1.

Mantels.—Each mantel, slate and hearths set in place, $18 and $20.

Painting.—Per square, $1.25, $1.50 and $1.75.

Sundries.—Such as door bumps, sash lifts, hooks, strips, etc.

Any new beginner that makes his estimates according to this rule will save at least one-third the figuring and is just as correct as the long way. I know this to be the fact, as I use this same rule in all of my estimating. If this is of any benefit to my brother chip, he is welcome to it.

Unfreezable Dynamite.

This invention is due to Herr Edward Liebert, Berlin, and it consists in adding a small percentage of a chemical ingredient either to the nitroglycerine or to the dynamite itself. Having, says *Iron*, so recently pointed out the dangers attendant upon the operation of thawing dynamite, because that operation is so seldom carried out in a proper manner, we need not now dwell upon the subject. We will only observe that the reports of H. M. inspectors of explosives show that the most fruitful source of accidents with dynamite is the thawing of the cartridges, which freeze at the comparatively high temperature of about 40° Fahr. The ingredient added by Liebert does not commence to freeze at 35° below zero, and it in no way detracts from the strength of the dynamite to which it is added. On the contrary, it slightly increases its effective power, being in itself explosive. The unfreezable dynamite is also said to be somewhat less sensitive to concussion than ordinary dynamite. Sir Henry Roscoe, F.R.S., has subjected unfreezable dynamite to exceedingly low temperatures, and he reports that Liebert's invention "is of great value and importance, as rendering solidification practically impossible, and therefore greatly diminishing the liability to chance explosion, by avoiding the well-known danger incurred in melting the frozen nitroglycerine." We are glad to notice the advent of such an invention, the public importance of which cannot be overrated.

Two Great Railway Enterprises.

The construction of a railway across the Sahara Desert to unite Algeria with the Soudan, and the laying down of a line across Siberia to connect the European systems with the extreme Orient, are two works of stupendous magnitude that are being undertaken respectively by France and Russia. Both proposals have been long under consideration, but it is only lately that they have received the necessary sanction of the governments. The idea of the French in constructing a line across the Sahara is to put their three possessions—Algeria, Senegal, and the Gaboon-Congo—into direct communication with each other, and at the same time to open up to commerce the vast area of territory which French exploration proves to be well worthy of the enterprise. Instead of being a desert, as was represented by popular ideas, the Sahara is highly productive in parts on account of its being well watered by rivers and lakes. The climate is mild and equable, and eminently suited to agriculture. The first difficulty in connection with this Trans-Saharan railway was the selection of the point from which to start. Both Senegal and the Gaboon-Congo are peculiarly suitable on account of their proximity to the territory which has to be traversed, but Algeria was selected on account of its value as a base of penetration. The work will be very costly, the estimated expense of laying the line in the midst of the desert being about £3,500 a mile. When completed the line will tap the Soudan and the region watered by the Niger, and will immediately connect it with the Mediterranean. The work has already been begun under authority of the government. The railway across Siberia owes its initiative to the activity of General Armenhoff. Its completion will necessitate the laying down of 4,200 miles of rails, and it will stretch from the west of the river Oural to the Russian port of Vladivostock, on the Sea of Japan. The line will naturally take a southern route, so as to avoid the forests and the animosity of the natives, and it will take in the rich mineral district lying between Lake Baikal and the river Amoor, where petroleum is especially found in great abundance. The line has already penetrated a little way into Siberia, and has now reached the town of Tjumen. The work will take many years to complete it, but it is stated that the railway will become valuable as a means of stimulating commerce with China before it reaches its eastern limit.

The Kitchen Sink.

The *Mechanical News* discourses as follows on a fixture of much importance in domestic economy, cleanliness, and health:

First as to the material—we all know by heart the undeniable statement which appears on so many prominent signs, that "Cast Iron Sinks." The same remark might be made of lead, earthenware, and even of wood, in the same connection.

Each material has its peculiar merits and demerits.

Items for cast iron.: It is cheap and non-porous. Against it: It gets rusty and unsightly, unless zinc-coated by that process so inappropriately termed "galvanizing."

A lead sink of course means a lead-coated sink—generally of wood. It does not get rusty; but it does get wrinkled like unto the visage of Methuselah during, say, the last 900 years of his life. Fewer dishes, etc., are broken in a lead-lined sink than in one of iron, for obvious reasons.

A non-lined wooden sink is an abomination. It gets foul in spite of soap, sand, and scalding, and is not durable.

Nearly every sink in every fifty houses you may name is too small to take in a self-respecting dish pan. It might be laid down as a broad general principle that sheep and beeves grow about of certain sizes; that roasts of mutton and beef come of about certain sizes; that dishes have to be big enough to hold them: and that sinks should be big enough to take in the dish pans which are to hold those dishes.

Next memorandum: The average servant girl will choke up any sink outlet on the market. We must circumvent her by either making a non-chokable outlet, or providing easy means of removing the obstacles, once in them.

Some day some bright dealer will put on the market a sink trap which can be removed by the average kitchen servant, or at any rate by her bond servant—the alleged master of the house—and which can, when so removed, be opened out lengthwise, and flushed free from grease coatings and from anything which may have lodged in the way of an obstruction.

The entire strainer device needs to be reorganized on a dividend-paying basis. There should be quite a deep and long recess between the bottom of the sink and the trap; and the upper strainer should be flush with the bottom of the tank; flat and level; readily removable, and strong enough not to be in danger of breakage. The under strainer should have very fine holes; should thoroughly protect the trap from the entrance of solid matter; and should be screwed in so as not to be removed without some little trouble.

I am not sure but that the sink should have faucets like those of stationary washstands, to swing back out of the way. One thing is certain: If there is a pump at the sink, it should be so arranged that its barrel should not take up half the sink and its handle about one-quarter of the kitchen. The pump should be set at the end of the sink next the wall, or most out of the way; this preferably at the right hand side, because most people are only right-handed instead of both-handed; and the handle should swivel out of the way. The contrary extreme is sometimes gone to; the handle is so close to the wall that the operator barks his or her knuckles three times out of a possible four.

If the sink pump is also arranged with a by-pass so that it supplies or forces the water to the tank in the attic, then it should surely be so arranged that the soloist can change hands while executing an adagio.

There are two things which can be done with the space under the sink.

One is to fill it in, and thereby offer a premium on the closet thus formed, with a choice selection of wet house cloths, cinquecento scrubbing brushes, saucers of stove polish, back number gaiters, etc.

The other is to leave the space clean and open, without even a projecting leg to support the sink.

I think, the writer adds, that good housewives will vote for the open space.

I am not certain but that the sink should stand out from the wall half an inch, for anti-croton-buggian reasons.

Its anterior angles should be rounded to a gentle radius to prevent the lodgment of greases and to facilitate cleaning.

Electric Power Rates.

In our last issue, says *Electrical Engineer*, we gave a few illustrations of the manner in which the electric power business had now come prominently to the front as a means of providing daytime work for central stations. It is to be borne in mind that the motor business depends largely for its success upon the rates at which the consumer can secure his current. We have received within the last few days the new schedule of power rates recently adopted by the Brush Company, of Baltimore, "after a very careful consideration." It is as follows:

⅛ horse power	$2 50
¼ " "	3 00
½ " "	5 00
1 " "	10 00
2 " "	16 00
3 " "	21 00
4 " "	26 00
5 " "	30 00
6 " "	33 00
8 " "	42 00
10 " "	50 00

This scale, which went into effect on July 1, seems reasonable for a city presenting such conditions as Baltimore does, with a large population engaged in a variety of pursuits but not distinctively of the industrial type and not presenting so great a diversification of small industries as one finds, for example, in Boston or Newark. Still the motor business has been fairly well worked up in Baltimore, and there are now 375 motors representing about 200 horse power of daily consumption of current. With the revised schedule this number and quantity should increase quickly.

Legal Aspects of Photographing Buildings.

An excellent idea is suggested by an architect who writes to the Pittsburg *Real Estate Record* as to the benefit of photography in building operations. He remarks:

"With high buildings arises a question of good foundations, especially when they are built alongside of old buildings two or three stories high. The greater weight of the new and high building is apt to crack the old building and damage it, and great care should be used in building up to prevent the settling of the new building from injuring the adjoining property. I suppose that for any damage done to the adjoining building the proprietors of the new building will be responsible, so I would recommend not only care in the foundation of the new building, but that the adjoining buildings be photographed to a large scale before any work is done on the new building, so that their condition might be on record in the event of a claim for damages. These photographs should be taken under the charge of one well acquainted with building, and should be not only the back and front, but the sides and parts of the buildings adjoining the new one. Often there are cracks in these side walls, and they ought to be photographed. One may laugh at the idea of photographing a crack, but it is sometimes very necessary, and I have seen the owner, who was claiming that the new building had damaged his property, look very queer when a photo of that same crack was shown, proving that it was there before the new building was erected."

QUILL toothpicks come from France. The largest factory in the world is near Paris, where there is an annual product of 20,000,000 quills. The factory was started to make quill pens, but when these went out of general use, it was converted into a toothpick mill.

Metallurgical Use of Fluorspar.*

BY DR. FOEHR.

Flourspar was, until the commencement of this century, considered an indispensable flux; it diminishes the loss of metal and was then the only energetic means to reduce the melting point of slag from ores carrying a high percentage of clay and zinc. Without fluorspar very refractory ores could not be smelted at all.

Gradually, however, as the blast furnaces and smelting apparatus were improved, fluorspar was superseded by lime and other cheap fluxes, but of late its use has been reintroduced into nearly all branches of metallurgy.

While fluorspar is regarded as a mere means to unite with excessive silicic acid, the possibility of its adoption is surprising, in view of the fact that the cost of fluorspar is six to seven times greater than that of limestone, while the formulas for fluorspar and limestone respectively,

$$2CaF_2 + 3SiO_2 = 2CaSiO_3 + SiF_4 \text{ and}$$
$$3CaCO_3 + 3SiO_2 = 3CaSiO_3 + 3CO_2,$$

show that the quantitative economy in fluxing with fluorspar compared with limestone is as 156 to 300. The fact is, however, that one part of fluorspar goes further than ten parts of limestone. The former is specially effective in reducing the quantity of fuel; it forms two parts of slag where limestone forms three, and it forms possibly also fluorsilicate, whereby heat is likely to be liberated.

While the rather high price of fluorspar prevents its use in the production of ordinary white and gray pig iron, it has proved a rapid and energetic solvent in blast-furnace work, where it is blown in as powder through the nozzles.

In making silicon iron, fluorspar plays a more important part. A ferrosilicon iron, with 10 per cent silicon, made specially in Upper Silesia, is almost indispensable for works that make very tough, deep-gray castings. This ferrosilicon can be obtained in any ordinary blast furnace from any silicious iron ore, if it is only fluxed with fluorspar and the slag is strongly basic. The fluorspar reduces the silicon energetically; at all events fluorsilicon is formed, which is reduced to silicon by the hydrogen contained in the furnace gases, and possibly also directly by the coke. It does not seem impossible that the greatly increased price for coke will result in a reintroduction of fluorspar as a fuel-saving flux in the manufacture of foundry pig, particularly as even a very small quantity of fluorspar, added to the charge, at once raises the product to No. 1 deep gray pig, rich in graphite.

The remarkable property of fluorspar, that it facilitates the reduction of the most different bodies—a property common to almost all the fluorides—makes it a valuable flux in the production of spiegeleisen. It has long been known that fluoride of manganese, as well as a mixture of a manganese combination with fluorspar, can comparatively easily be reduced to metallic manganese by means of sodium. This reaction served Brunner in his successful attempts, the first ever made, to produce metallic manganese in large quantities. The modern application of this method to the blast furnace substitutes carbon for sodium. A highly basic slag, rich in flourides, seems nearly indispensable for the production of a rich ferromanganese in the blast furnace.

The property of fluorspar, to carry phosphorus into the basic slag, has never been of special importance as far as pig iron is concerned, but it is utilized by the Krupp & Rollet methods of dephosphorizing pig in the basic-lined cupola-furnace. While, at all events in the blast furnace process, the property of fluorcalcium to form an easily melting slag with phosphates is of some importance, fluorspar in the process of purifying the pig iron serves probably only as a flux for the highly basic limeslag saturated with phosphorus.

In the Thomas process too, and even in the Bessemer converter, fluorspar is in recent practice being added in small quantities for the purpose of concentrating the slag and reducing the loss of metal; very great care, however, is needed to prevent such a slag from attacking the acid lining. It is also said that in puddling in the various steel-making methods and in the Siemens-Martin process, fluorspar is added partly as a slag-forming flux. The details are, however, not known.

In foundry work, it is an astonishing fact that limestone, which, because of its cheapness, superseded fluorspar, of late is losing ground to the latter. The limestone flux in cupola-furnace work serves only to slag the ashes of the fuel, the sand adhering to the pig, etc., no chemical effect on the iron being intended. But fluorspar affects the iron noticeably, keeps it gray and soft by keeping the silicon as an alloy, while a limestone flux favors the tendency of the silicon to slag. Besides, fluorspar carries some phosphorus and sulphur into the slag. Fluorspar makes it possible to melt inferior kind of pig iron and a higher percentage of scrap. But, strange enough, practice has shown that too much fluorspar is rather injurious than advantageous; one reason for this being that the manganese contained in the iron is thereby prevented from slagging.

The quantity of fluorspar which is added to 100 kilogrammes of pig iron to be remelted is one-third or, at the most, one-half kilogramme. The improvement of the product caused by this flux is specially manifest in the improved cupola furnaces, particularly the Herbert's furnace, which has much facilitated the utilization of inferior iron for soft castings. The property of fluorspar to protect manganese does not seem favorable enough to offset the injury due to its silicon-reducing power. Its use would, at least, require melting in a basic furnace or as cold as possible.

As the small quantity of the phosphorus and sulphur which is contained in Swedish charcoa. iron is almost entirely carried off in the comparatively acid slag by fluorspar, this is of prominent importance for the treatment of very pure qualities of iron.

* *Chemiker Zeitung.*

Patents on Fruits and Plants.

The subject of securing to the originators and owners of new varieties of fruits and vegetables the sole right by law to propagate and sell them engaged the attention of the recent meeting of American nurserymen in New York, and the matter was referred to a special committee for further consideration. Since that time, a circular has been distributed by our valued contemporary the Rural Publishing Company, with a proposed law, submitted for the consideration of horticulturists, under the head of "To Protect Plantsmen." The circular suggests the appropriation of $50,000 by the general government, to establish testing stations at the State experiment stations, and a board of experts at Washington, to decide the claims of applicants. A register of cultivated plants is to be made, and their identity or distinctive character is to be determined by actual cultivation.

This is certainly a praiseworthy attempt to secure to originators of varieties compensation for their labor, but it strikes us as involved in difficulties which will render it impracticable by way of accomplishing the desired end. Patents for machinery may be accurately described, and each kept entirely distinct from all others; but the differences between varieties of plants are so indefinite that a description in words would fail to point them out. The peculiar flavor, for instance, in hundreds of fruits, could not be so accurately given that a pomologist could not make a mistake in recognizing them. Take the apple, for example, of which there are already some three thousand described varieties of this single species; it would be impossible for the most experienced pomologist to say that a new claimant was not one of these old sorts, under the changing influence of different soils, varying climate, changing seasons, unlike culture, and many other influences; yet the decision of important legal questions involving large sums of money would depend on these changing shades of quality. We have known some of our greatest pomologists, as Wilder, Downing, and others, to require years to decide questions between them, accompanied by continued cultivation and bearing; and the continued annual reports bear witness of the difference of opinions on fruits. What could the board of experts do in order to decide between the thousands of varieties of apples, the many hundreds of pears and of peaches, of plums and cherries, of grapes and strawberries? Could they point out distinctive and peculiar characteristics in every one of these many thousands, or would they have to keep them all in bearing the year through, in order to compare the old and the new varieties? If so, there would still be another and greater difficulty—the changes in size, quality, flavor, growth and appearance, produced by cultivation, soil, climate and season, often entirely altering the fruits. We have known fruits taken from different parts of the same tree to be pronounced quite distinct.

All these influences would be liable to place an honest cultivator in great peril or to give an adventurer an advantage over him. The community has been greatly annoyed in past years by overbearing claimants under the head of mechanical inventions; but a law of the kind proposed, with such a multitude of indefinite objects, would be liable to greater difficulties. We have heard an experienced cultivator assert that he would not dare, under such a law, to cultivate any common fruit, as its character could be changed and unscrupulous persons claim a new one from a cultivated old variety, or prove that a new and pilfered sort was some old one.

Mr. Meehan stated some years ago that Mr. Durand (so widely known for the production of new strawberries) had at one time 3,000 new sorts, every one of which he asserted possessed merit. How could a board of experts distinguish every one of these, and decide a controversy between claimants and the thousands of new strawberries which have been produced?

An establishment at Washington for testing varieties would give a very different result with many sorts at that place, as compared with results in the North, or West, or in the Southern States; and opinions at one agricultural experiment station might vary greatly from those given at others.

This subject has occasionally come up before our horticultural meetings in past years, and we have always entertained but one view of the difficulties attending any legal enactment. The only practicable remedy for the losses likely to be sustained by originators of new fruits and vegetables appears to be in the use of names as trade marks, which are distinct and cannot be varied. Some of the members at the nurserymen's meeting already alluded to stated that they had used trade marks under existing laws, protecting them to a great extent.—*Country Gentleman.*

New Method of Preparing Lantern Slides.

Dr. Sorby, F.R.S., recently gave a demonstration of his new method of preparing specimens for exhibition by the lantern. On the whole, his method consists in drying specimens on glass, and in some cases in subsequently mounting them in Canada balsam. As an illustration, some cases may be described. Taking such a beautiful Nudibranch as Eolis, it may be first washed in a mixture of equal parts of alcohol and water, then properly arranged on the glass, and allowed to dry. Success depends to a great extent on the fact that the edges dry first, and adhere to the glass in such a manner that the subsequent drying reduces only the thickness of the object; and when dry the original outline is perfect, and the animal seems as if it were a projection on the plane of the glass. When subsequently mounted in balsam and used as a lantern slide, the natural form and color are seen on the screen like a beautiful picture. Such Chætopoda as Niveis are easily prepared, and when thrown on the screen, not only the general form but every hair and the chief blood vessels are visible, though some of the latter are too small to be well seen unless the real object is examined with a low magnifying power as a hand specimen.

Strange to say, such very unpromising animals as Medusa give most satisfactory results. They must first be deposited for a considerable time in diluted alcohol, to remove the salt, then stained with Keinberg's hæmatoxolin or Beale's carmine, and finally dried on glass and mounted in balsam. When thrown on the screen the most important points in their structure are well seen. The fringe of tentacles and the sub-umbrella stain dark, while the canal system is beautifully shown dark on a pale background. It would be difficult to artificially paint a diagram showing the structure better than does the real animal thus prepared. Such preparations as those named above are equally satisfactory as museum or cabinet specimens, as they take up less room than bottles, do not lose their color, and can be easily examined in the hand with low magnifying power.

Venice and Stolen Property.

Venice, in fact, is one vast museum of stolen property. A self-righteous inscription over the gateway of St. Mark's informs the visitor, with much show of conscious probity, that the four famous antique bronze horses above the portal, "removed by the rapacity of the enemy to Paris" under Napoleon I., were again restored to their proper place by that incorruptible champion of strict international morality, the Emperor Francis. But the glorious team, a work of the sculptors of the Neronian age, had previously been stolen in the thirteenth century by the Doge Dandolo from Constantinople, whither they had been carried from Rome, for his own glorification, by Constantine the Great, who had filched them himself from the triumphal arch of Trajan, who in turn had borrowed them, as seems probable, from the similar monument of his predecessor Nero. Such are the humors of the world and the whirligigs of time. Indeed, if every man had his own again, one might almost say there would be no Venice. The column of St. Mark's with its winged lion would go back to Syria; the square pillars by the Doge's palace would return once more to St. Saba, at Ptolemais; the alabaster supports of the inner canopy would find their way back, men say, to Solomon's Temple; and even the mouldering body of the Evangelist itself, which reposes beneath its pall of gold and jewels below the high altar, would have to migrate to the community from which it was first filched, the Coptic Christians of Alexandria.—*The Cornhill Magazine.*

The inventions of Mrs. A. La Guayra Mayo, illustrated and described in our last paper—a sewing machine guide and a hemmer attachment for sewing machines—form also the subjects of patents taken through the SCIENTIFIC AMERICAN patent agency by this lady inventor in Great Britain, France, Belgium, Germany, Austria, Italy, and Canada. It will thus be seen that the field for a profitable invention is by no means limited to that covered by a United States patent, there being, indeed, often equal promise of a return in other countries, where the number of patents taken out is far less than in the United States.

Charging for Knowing How.

American Furniture Gazette: "I paid a bill the other day," said a large manufacturer to me, "without a murmur, simply because of the way it was worded. My engineer found that his hot water pipe would not work, and after puttering at it for an hour sent for a machinist. He bothered with it half a day and concluded it must come apart. I was much annoyed, for that meant the stoppage of my factory for a long time. Before I gave the order to take it to pieces some one suggested that a neighboring engineer be sent for, as he was a sort of genius in the matter of machinery. He came, and after studying the pump awhile he took a hammer and gave three sharp raps over the valve. 'I reckon she'll go now,' he quietly said, and putting on steam 'she' did go. The next day I received a bill from him for $25.50. The price amazed me, but when I had examined the items I drew a check at once. The bill read this way: 'Messrs. Blank & Co., Dr. to John Smith. For fixing pump, 50 cents. For knowing how, $25.' Had he charged me $25.50 for fixing the pump, I should have considered it exorbitant. But 50 cents was reasonable, and I recognized the value of knowledge, so I paid and said nothing."

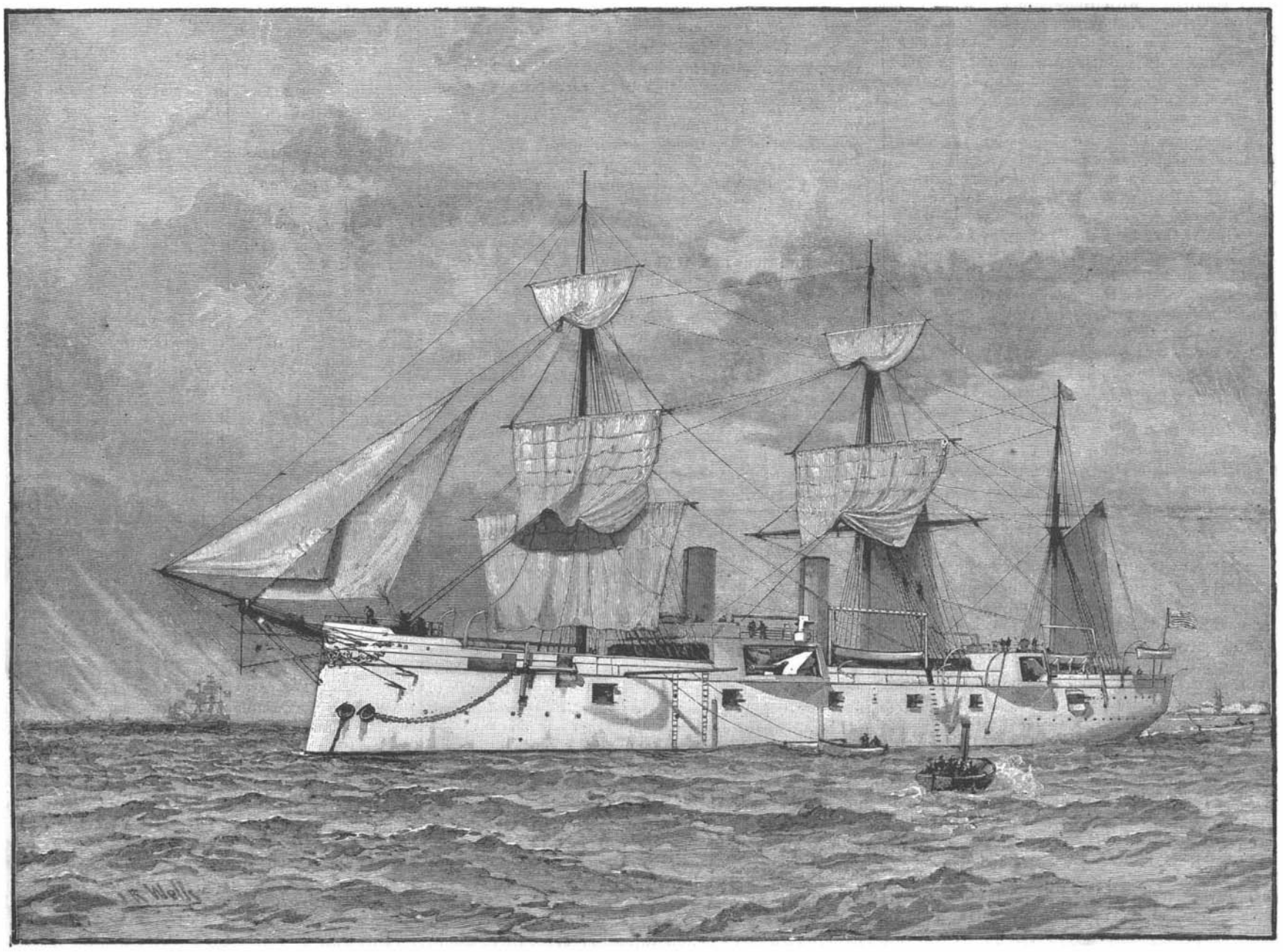
[That man evidently knew as much about making bills, the *Railway Review* adds, as he did about fixing pumps.]

The Kidney Bacilli.

There is a disease in Japan known as *kakke*, a disorder of the kidneys communicated by bacilli, and closely related to the more virulent *beri-beri*. From the distribution of *kakke*, M. Gueit, says *Nature*, has recently drawn conclusions as to the ethnic composition of the present population of Japan. The fact that Chinese always escape the disease, even in localities where it is very prevalent, indicates (in his opinion) that the Chinese or Mongolian element is not the dominant one. He finds three constituents in the population: (1) descendants of Ainos; (2) of Negritos; and (3) a Malayan element, which is the most prominent. Wherever the Malayan goes, he brings with him the *beri-beri* order of disease; his liability to this being probably due to the Hindoo blood in him. From India we find *beri-beri* spread, like the Malays, to Madagascar on the one side and to Japan on the other; we meet with it also in Java, Sumatra, etc. According to the proportion of Malay blood in the natives of Japan is the frequency of the malady, which occurs in various forms and under different names. As to the Negrito element in Japan, M. Gueit found an interesting proof of it in the island of Sikok, in the form of a small statuette of Buddha having the characteristic nose and hair of the Negritos.

THE CHICAGO.

The squadron of evolution sent by the United States government to the Mediterranean, under command of Rear-Admiral John G. Walker, attracted much attention. The admiral's flagship was the frigate-built steel cruiser Chicago, which is represented in our illustration, for which we are indebted to *The Illustrated London News*. This ship, constructed of mild steel, at a cost of about one million dollars, and launched in 1885, is 334 ft. long, 48 ft. broad, and draws 19 ft., having a displacement of 4,500 tons. She has two screw propellers, with engines of 5,500 horse power, indicated; the machinery is protected by a partial steel deck. Her speed is 15 knots an hour, and she carries 940 tons of coal. The armament consists of four 8 in. breech-loading guns, on the spar deck; eight 6 in. breech-loading guns, in broadside, on the gun deck; and two 5 in. breech-loading guns aft; with six machine guns.



THE STEEL CRUISER CHICAGO, AS SHE APPEARED IN THE MEDITERRANEAN.

Medical Uses of Anilin.

It is a well-known fact in biology that bacteria and bacilli absorb anilin and are killed by it. Two German observers—Stilling and Wortmann—have recently considered the possibility of utilizing this property in medical treatment (Humboldt). The diffusibility and harmlessness of violet anilin dyes (called, for brevity, "methyl violet") without arsenic, in small doses, were first demonstrated on rabbits and guinea pigs. Then certain eye disorders were produced in those animals, and treated with anilin solution, the results being excellent. The authors proceeded to operate on the human subject. A skin ulcer on a scrofulous child, which had been treated for a month with the ordinary antiseptic agents without success, was gradually healed by daily dropping a little anilin solution on the sore; and similar good results were had with bad cases of eye disease. It soon appeared that many surgical cases were open to successful treatment in this way; and that, in general, wounds and sores developing suppuration could be sterilized with anilin. It is also thought that cases of internal inflammation, as in pleuritis and peritonitis, may prove to be not beyond the reach of this order of treatment.

The Areca Nut.

A recently published paper on "The Narcotics and Spices of the East," which was read by Dr. Dymock bebefore the Anthropological Society, of Bombay, contains, according to the Calcutta *Englishman*, some interesting information about the areca nut, which is called *supari* by natives, and usually betel nut by Europeans.

Although the nut is so well known, it has only been scientifically investigated in comparatively recent years. The palm on which it grows is supposed to be indigenous in the Malayan peninsula and islands, but is now only known in the cultivated state. Few persons have any idea of the consumption of the nut in India; but, as a matter of fact, in addition to the vast quantity locally produced (Dr. Dymock says 100,000,000 people eat it every day of the year), there is an annual import of about 30,400,000 lb. from Ceylon, the Straits Settlements, and Sumatra. On the other hand, there is a small annual export of less than 500,000 lb. for the use of Indians living in Zanzibar, Mauritius, Aden, China, and other countries. It is well known to the natives that the fresh nuts have intoxicating properties and produce giddiness, and that the nuts from certain trees possess these properties to an unusual extent, and even retain them when dry. These intoxicating properties are much diminished by heat, and as the nuts which possess them are apt to be mixed up with the common sort, many cautious people decline to use any except the red nuts of commerce, which have all undergone a process of cooking. Dr. Dymock inclines to the opinion that the original wild nut must have been an intoxicant, especially as the unripe nuts of the best trees produce slightly intoxicating effects. The betel leaf or *pan*, with which natives eat the areca nut, is highly esteemed, and its thirteen properties are enumerated in the ancient books of the Hindoos. Until very recently the nut was supposed by European medical writers to be simply astringent, and the intoxicating properties of the *bira* or *pan*, the universal native pledge of friendship, were supposed to be due to the leaf, and to the spices which with lime are put into the *pan*. But the process of organic chemistry has led to the discovery of organic properties in the nut, the active principle of which, if injected under the skin of rabbits and cats, causes their death in a few minutes. At the same time the essential oils of betel leaves have been found to be highly beneficial in catarrhal affections and throat inflammations.