feat of the bill; but, should it once become law, there is little doubt that its provisions would be generally sustained by the lesser courts throughout the country, and it would be many years, and only after it had done about all the injury possible, before a final reversion might be obtained.

It has also been shown that the passage of the bill through the House was effected by a sort of *coup d'état* "in the interest of the Western farmers!"—and that no consideration of its provisions was had in that body; it did not come from the Committee on Patents, which has from time immemorial had charge of such matters, and was passed with a very light vote, under the assumption that it covered nothing of essential consequence. It did not matter that Congress had heretofore, for two or three years, given a great deal of attention to the question of the revision of the patent laws, and that the Senate had ably canvassed the whole ground before passing a bill which the House summarily rejected; all of this goes for nothing, and the House, taking not more than five minutes' time therefor, passes a bill whose practical effect would be even greater than that of the previous Senate bill, and which cannot fail, if it become law, to work an almost complete confiscation of the property of thousands of patentees.

The proposed law is undoubtedly in the interest, and is the immediate, though skillfully concealed work, of a powerful combination of monopolists. The influence of great moneyed interests in shaping legislation, national as well as state and municipal, has undoubtedly been on the increase of late years. The great corporations and combinations of capitalists which now exist have only lately attained their present gigantic proportions, and, though the manner in which they work to compass their ends is partially understood, the far reaching scope of their schemes is almost beyond ordinary comprehension. There are so many "wheels within wheels" in the complex machinery they employ, that it is always difficult, and often impossible, to decide whence the power is derived, and precisely what object is to be attained. The effort to put through the proposed new patent law, the dexterity with which it was managed in the House, and the plausible and "taking" reasons at once given to the public for the urgent necessity of such a measure, show the way in which this department of their work is attended to. To suppose that the real reason for the passage of the bill was the one given—that it was simply a measure for the "protection of farmers"—would be ridiculous. But to find out exactly who are the parties working so strenuously for the passage of this law, how they have attained their present measure of success, and how much a complete victory would be worth to them in dollars and cents, would be to discover a portion of their work which it is their main object to cover up. A large proportion of the users of patented devices would prefer to pay an equitable price for the value they in this way receive, and in this fact lies the primal strength of our patent system. Any persistent and determined effort, therefore, to confiscate the rights of patentees, cannot have a popular indorsement, and the intimation that "the farmers," whose benefits under our patent system have been so great, are the sponsors of this movement, is absurd on its face. This excuse, and this particular way of changing our patent laws, were not thought of until lately, although there has been, for a long time, a powerful interest working for such amendments as will make it more easy and safe to infringe upon the rights of patentees.

Among those who have most earnestly sought such changes, and who would be the greatest beneficiaries thereby, are the great railway corporations; the sop thrown to the "farmers" would be but a bagatelle to what they would gain, for the passage of such a bill as that now before the Senate would give them advantages whereby they might virtually confiscate thousands of patents involving details of construction and operation, in road-bed, bridges, cars, locomotives, supplies, etc. Certain large manufacturers of the Eastern States have also been very zealous in this work, from the success of which they would reap substantial benefits in escaping payment of fees on many minor patents.

The danger will not be over until the bill is taken up in the Senate and *defeated*, or so amended as to make another vote upon it necessary in the House. In the latter case, we may be assured, it will not again go through on a stolen passage. Meantime, and until some permanent disposition is made of the matter, it behooves all patentees, and all who are interested in the maintenance of any rights heretofore supposed to have been "secured" to them by our patent laws, to see that the members of the Senate are individually furnished with as many personal protests as the threatened enactment of so unjust a law ought to bring out.

Imitation Stained Glass—A New Idea.

A few years ago stained glass windows were rare in this country, even in churches, except among the ambitious and costly of those of two or three denominations. Now ornamental windows are comparatively plenty, not only in churches, but in other public and private buildings, and would be more common in ordinary dwellings were the cost within the scope of ordinary purses.

The growing taste for this sort of color decoration cannot fail to be materially advanced by the cheap and very successful imitation of stained glass effects now coming into use. Thin sheets of silk paper are printed with brilliant oil colors, in varied artistic patterns; and when pasted upon common glass windows they produce all the brilliant effects of costly colored glass. The color sheets can be applied without skilled labor, and show a great advance in decorative effects over ordinary curtain shades or blinds. The invention has been patented, and we predict for the product a large demand. The address of the manufacturer may be found in our advertising columns.

THE NEW METEORITE.

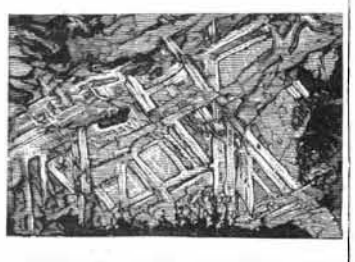
In our issue of March 6, we gave a brief account of a new meteorite, discovered near Chulafinne, Ala., by Mr. John F.

Meteorite from Chulafinne, Ala.

Watson, and now in the possession of Mr. Edison's expert mineralogist, Mr. W. E. Hidden, of Newark, N. J.

We now present our readers with a side view of this interesting object, and give a representation of the Widmannstaettian figures which it exhibits. Upon analysis of the meteorite, its constituents are found to be approximately as follows: Iron, 92 per cent; nickel, 7 per cent; phosphorus, about the same as ordinary steel; and of copper and carbon only a trace. It is about as hard as copper, and exhibits about the same tenacity under the cutting tool.

This in common with other metallic aerolites is very heterogeneous, as indicated by the marked figures developed on the polished facet by the action of nitric acid. Mr. Edison suggests that "These lines are without doubt a map of the streets of the New Jerusalem."



Widmannstaettian Figures on the Chulafinne, Ala., Meteorite.

Meteorites of this size (31 lb.) are not extremely rare, and they have been found of all sizes, weighing from a few ounces to 25 tons. It is now generally conceded that these strange bodies fill the spaces between the orbits of the planets and swing around the sun like so many miniature worlds, until by unexplained causes they are brought within the attractive influence of the larger planets, when they gravitate toward the superior body.

Kepler's idea that there were more small bodies flying about in space than there are fishes in the ocean, seems to find support in modern discoveries.

The Great Iowa Meteorite.

This great meteorite, which fell in Iowa the early part of last year, is thus described by Professor Thompson, of the Minnesota State University, in a recent astronomical essay: May 10, 1879, was a bright, clear, cloudless day. At 5 o'clock in the afternoon, in full sunshine, this meteorite passed through the air, exploded, and fell in the town of Erterville, Emmet County, Iowa, about ten or twelve miles below the southern boundary of Jackson County, Minn., in latitude 43° 30′ north, longitude 94° 50′ west from Greenwich. The path it followed marked a course from northwest to southwest, and was seen for a distance of several hundred miles. Its appearance in the heavens was that of a huge globe of fire, attended by a fiery cloud. The people who saw it were greatly alarmed; not more at the flying ball of fire which seemed no near to them, than at the terrific explosions immediately above them; those who did not see it thought an earthquake had occurred, and were in great terror. The noise accompanying its flight is described as rumbling, cracking, crashing, similar to that produced by a train of cars crossing a long bridge; then came a very loud report, followed immediately by two distinct reports in quick succession, though not so explosive or loud as the first. It struck the ground in separate masses, together with smaller fragments scattered over an area of three or four miles. There were two large pieces which fell about two miles apart.

The largest mass, weighing 470 pounds, now at Keokuk, Iowa, penetrated a hard blue clay soil, to the depth of twelve feet. Another mass, weighing 170 pounds, now at the State University, fell on a dry grassy knoll, and was buried to the depth of 5½ feet. A few rods from the largest mass was found a fragment weighing 30 pounds, and a schoolboy picked up a specimen weighing three pounds. The form of all the pieces is like that of rudely detached masses from a quarry, or ejected from the mouth of a volcano. The mass in the museum of the university has an irregular rhomboidal outline, about 15 by 18 inches, of an average thickness of 6 inches, and when first obtained was covered, as most meteorites are, with a black shining coat or crust. The largest mass is not so regular in its formation. It is more ragged and bristles with points of nickeliferous iron. Professor Heinrich, of the Iowa State University, pronounced it the more valuable of the two large masses; but a full analysis will probably determine them to be one and the same. While the nickeliferous iron seemed more abundant in the largest, the crystalline formations are far more numerous in the smaller.

THE FIRST STEP IN INVENTION.

A correspondent, who has had some experience as an inventor, suggests that the SCIENTIFIC AMERICAN should regularly set apart a portion of its space for the outlining of inventions needed. This for the purpose of setting inventors "on the right track," and so laying out their work, that they may "go immediately at the thing wanted."

To a considerable extent the SCIENTIFIC AMERICAN has always made a practice of suggesting, whenever it could, opportunities for invention; and not unfrequently such suggestions have been successfully worked out and patented by wide-awake readers. Further opportunities of the sort will be gladly taken advantage of; and pleasure will also be taken in presenting the suggestions of any who clearly perceive the need of and opportunity for specific improvements in any art or manufacture, but are unable, for lack of time, means, or inventive capacity, to undertake to work out the needed invention.

Such suggestions, however, our correspondent will readily understand, are not likely to be numerous. Our countrymen are by habit as well as by nature, inventors; and when one sees a chance to better any process or product he is very sure to keep his knowledge to himself for future developments. It is mainly in connection with inventions requiring a large outlay of time, labor, or money, or all three, that men voluntarily give away ideas of value. However original and valuable, such ideas are not apt to be salable; while only the more courageous and forehanded among inventors dare attempt to develop them materially.

Opportunities for working out such costly and complicated inventions are obviously of little use to the class of inventors which our correspondent has in mind. What he wants is specific information touching this, that, or the other clearly felt deficiency in the means or methods of one or other of the arts, deficiencies which the would-be inventor could supply if he only knew what was wanted.

Such deficiencies are doubtless infinite in variety and number; but, for the most part, it is the business of the inventor to discover them, as well as to invent the remedy; and, in most cases, his acuteness is chiefly manifested in detecting the opportunity for a useful invention. The arts are full of improvable means and methods, and of openings for entirely novel processes. As a rule, it is the inventor of the future who will first detect where the needed improvements and substitutions should fall; and in this his genius will be chiefly displayed. The development of the inventions will be a secondary and comparatively simple work.

Accordingly, the faculty which the young inventor should cultivate most sedulously is the faculty of critical observation. He must learn to look upon everything in two aspects—first, to see exactly how it appears, how it was produced, and how it works; second, to see how its appearance, its working, or the manner of its production can be improved, simplified, and cheapened, or its uses extended; or whether something entirely different would not answer the purpose better. With the cultivation of this faculty the inventor's difficulties arise not from the lack of opportunities to invent, but from their multiplicity, and the need of restricting his thoughts and constructive labors to such novelties as are likely to be profitable.

In short, the young would-be inventor must begin further back even than Mrs. Glasse advised in her famous receipt for cooking the hare. He must not merely "catch the hare," but he first must learn how to catch hares and where they are likely to hide. After that the catching and cooking are easy.

THE telephone has been found by Herr Niemöller (*Wied. Ann.*) capable of determining very quickly and accurately the resistance of liquids. It is substituted for the galvanometer in a galvanic bridge, and an induction current is used; then, if the resistances compared are a large liquid resistance on the one hand, and a Siemens resistance box on the other, so that the electro-dynamic constants of the branches are very small; if, further, a German silver or platinum wire be used as measuring wire, it is found that in the position where the galvanometer shows no deflection, the tone in the telephone has a well-marked minimum of intensity. Supposing the liquid resistance has 2,000 units, a variation of it, even 4 units, reveals itself in a displacement of the minimum position.

AT the present time there is annually manufactured on the Mississippi River and its tributaries about 1,500,000,000 feet of white pine lumber, with its proportionate accompaniment of shingles, laths, and pickets. This is mostly consumed west of the river, and finds its way to Texas, Kansas, and Nebraska, and even to Colorado. St. Louis receives more lumber annually than any other point on the river, but after deducting the amount required for home consumption, Hannibal distributes more for foreign consumption than St. Louis.

Improved Surveying Instruments.

Mr. T. A. Matsdaira, C.E., a native of Japan, now of this city, is the author of several improvements as above. One of his instruments consists of a steel plate, upon which a bar graduated to fine divisions upon a scale of ten is fastened. At one end, so arranged as to slide upon this bar to any position, is a semicircular plate, with its circumference divided into degrees, minutes, and seconds. At the other end is a similar plate, a quadrant in form. At the center of these a movable bar is arranged to turn like a pointer and indicate the angle. Each is graduated to the same scale as the first bar. To find the required element of a triangle, it is only necessary to revolve the bar on the semicircular plate if the angle is obtuse, and upon the quadrant if it is acute, until the proper angle is indicated. With the other bar the given side is placed so that a triangle similar to the one to be solved is shown, and then the required angle can be read off from the plate. This is applicable whether one side and the adjacent angles, or one angle and the adjacent sides, or one angle and the opposite sides of a triangle are given. The result is obtained at a glance and in a few seconds, while the use of common trigonometrical calculations by sines and cosines involves the use of tables and takes much time. If the instrument is made with the accuracy attainable now in the construction of scientific apparatus, the result, the inventor claims, will be correct.

DISTANCE FINDER.

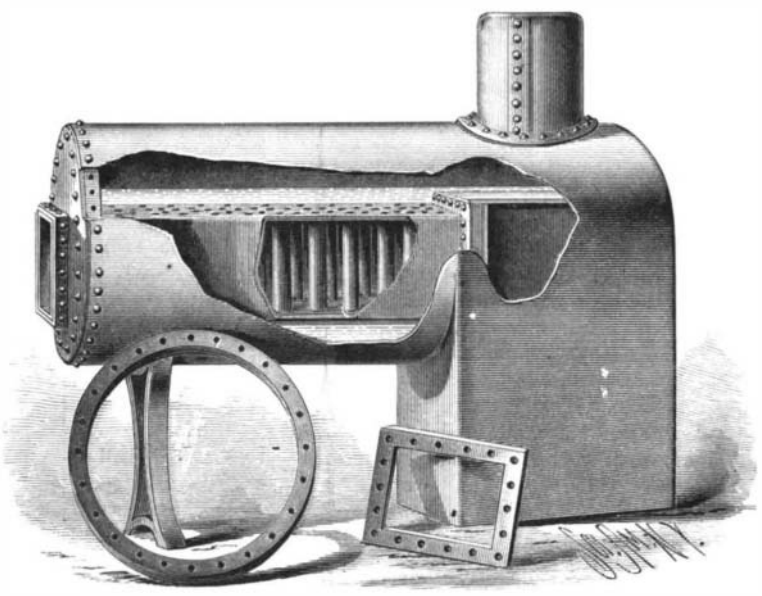
The same inventor makes an instrument for finding distances, which consists of a finely graduated brass or steel plate, two feet in length. It has a slot in the center and a movable support, to which a telescope is attached, which may be firmly fixed by a thumb screw. If, for instance, the distance of an object across a lake is sought, the instrument, which has five spirit levels to secure perfect accuracy, is placed in position, and the telescope is sighted upon the object and firmly attached to the support. It is then moved in the slot two feet to the other end of the plate, and another object is now noted through it. With this object in mind, the telescope is moved back to its first position, and turned until this second object is seen through it. The variation from the line of its first direction gives an angle of a triangle, at the other two angles of which are the two objects. By means of the first mentioned instrument the second angle and sides of the triangle are measured, and hence the distance of the first object is secured.

Another device for finding the distance of an object in a different way is also described by Mr. Matsdaira. The plate, two feet in length, has a fixed telescope at one end. At the other end, upon the arc of a circle, whose sections are four feet, another telescope moves, and has a pointer, which directs to a graduated scale at a tangent to the arc. When the two telescopes are both directed to the distant object the pointer indicates a certain number on the scale, which is divided down to $\frac{1}{33}$ of an inch. A table accurately prepared shows to what distance these numbers refer, and by looking on it the distance is ascertained.

IMPROVEMENT IN BOILERS.

The accompanying engraving represents an improved boiler recently patented by Messrs. J. D. Ogle and R. A. Burnett, of Washington Court House, Fayette county, O The boiler is constructed with a view to a perfect and natural circulation of water, and is arranged so that all of the tubes, together with the tube sheets, may be easily removed from the boiler shell for cleaning or repairs. The flues or tubes are arranged vertically in a rectangular flue box, provided with a rectangular flange, which is bolted to a corresponding collar surrounding an opening in the rear wall of the fire box. The rear end of the flue box is riveted to the back head of the boiler, and the latter is secured to an internal flange in the boiler shell by bolts. The joints at the ends of the flue box are very strong, and capable of withstanding any strain that can be brought to bear upon them. The flame, smoke, and products of combustion pass through the flue box and around the flues, effecting a rapid generation of steam. The circulation of the water and steam in the vertical tubes is natural and perfect.

When occasion requires the removal of the tubes for cleaning or any other purpose, the bolts are removed from the rear head of the boiler and from the rectangular flange surrounding the forward end of the flue box, when the flue box, with the entire series of tubes, may be withdrawn from the boiler shell. In cases of boilers carrying a very high pressure, the flue box may be strengthened by stay bolts in the usual way. The advantages of this style of boiler will be apparent to any one familiar with the subject of steam generation.



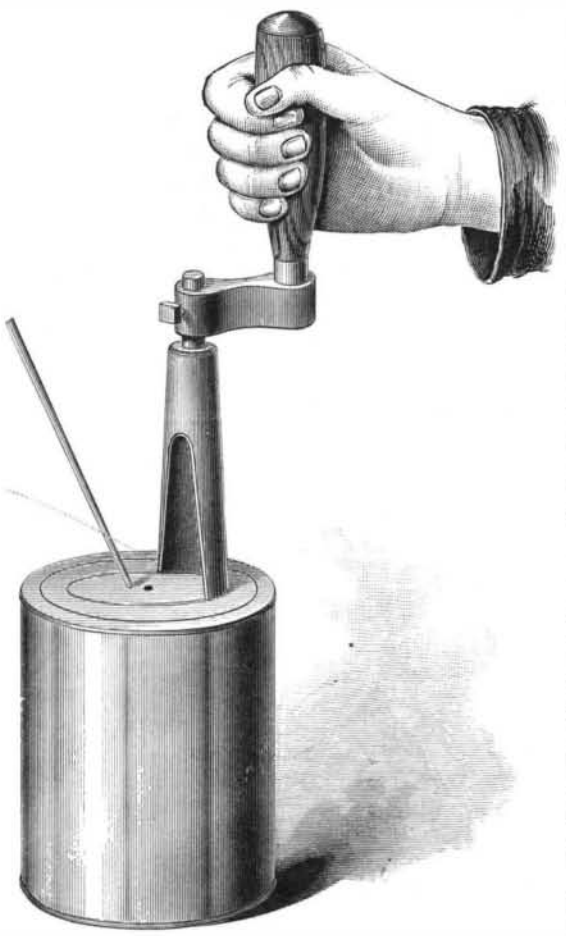
OGLE AND BURNETT'S IMPROVED BOILER.

Tobacco Chewers not Wanted.

It is a well known fact that tobacco juice contains nicotine acid, a sort of tannate, very refractory in dyeing. The *Textile Colorist* says: It has just been discovered in Europe that stains and imperfections, unaccounted for so far, on various goods submitted to careful dyeing, were caused by the salivation of chewing workmen, especially weavers. Any moisture containing tobacco extract falling upon tissues of mixed materials, such as wool and cotton, notably in raised goods, as velvet, plush, blankets, etc., will create spots deeper in shade than the ground color, as if acted on by a stronger mordant. Manufacturers have been obliged to apply on an extra tannin mordant and redye many pieces of goods on account of this defect. Strict regulations against this ill use of tobacco salivation have been enacted in several establishments as a remedy for this curious inconvenience.

NEW SOLDERING TOOL.

The annexed engraving represents a modification of the ordinary soldering iron, intended to be used in capping or



PAINTER'S SOLDERING TOOL.

sealing provision cans. It facilitates the operation of soldering, and dispenses with the use of revolving tables and the complicated mechanism usually employed for the purpose. The invention consists in a can soldering tool, having a soldering edge curved to conform to the groove in the can cover designed to receive the solder, and a handle located at one side of the axis of the tool, so that while the rotation of the tool is dependent upon a rotary motion of the handle about the vertical axis of the can, its working edge is guided by the groove in the top of the can, to which it conforms. This invention was recently patented by Mr. William Painter, of Baltimore, Md.

Malleable Bronze.

Dronier claims to have discovered a simple method of rendering bronze as malleable as copper, iron, etc. This consists in the addition of a very little mercury—½ to 2 per cent. It seems to act mechanically rather than chemically. The mercury may be combined with one of the metals of which bronze is made, before they are combined, by pouring it into the melted metal and stirring well, or it may be put into the melted copper along with tin, or just after the latter has been added, or an amalgam of tin is stirred into the melted copper.

MECHANICAL INVENTIONS.

Mr. James J. Dubois, of Springtown, N. Y., has patented an improvement in wagon running gear, the object of which is to furnish wagon reaches constructed so that they may be screwed into the rear axle and the head block, and may be guarded from being worn by the forward wheels in cramping the wagon.

An improved ore feeder for stamp mills has been patented by Mr. Isaac B. Hammond, of Deadwood, Dakota Territory. The object of this invention is to furnish an improved machine, so constructed as to feed the ore to the mortars as it is required, automatically. It may be adjusted to feed more or less ore, as required.

Mr. Wade P. Wood, of Leon, Iowa, has patented a novel automatic brake for wagons. This invention is an improvement on the brake for which letters patent No. 206,063 were granted to the same inventor July 16, 1878. The improvements render it more satisfactory in use and more reliable in operation.

Mr. William Huey, of Cambridge, Md., has patented a machine for cutting blanks from a block of wood and simultaneously grooving it preparatory to bending it into form for making the rectangular sides of a box. The invention consists in the arrangement of a stationary horizontal knife bolted strongly to a bed frame, so that it cannot bend when under strain; an adjustable gauge plate with groove cutters arranged just in front of the knife and enough below its edge to give the proper thickness of blank, together with a reciprocating block carrier.

Mr. James A. Knetzer, Sr, of Fillmore, Ind., has patented an improvement in the class of wagon brakes in which the sliding brake bar is adjusted by a rock shaft hung on the rear axle, and having on its inner end an arm from which a rod extends forward to the brake bar. The improvement pertains to the construction of the lever which operates the rock shaft, and the construction and arrangement of the device which connects them.

A firm and easily applied device for fastening handles to axes and other tools, has been patented by Mr. Andy E. Tangen, of Bismarck, Dakota Ter. It consists in fastening the handle in the eye of the ax or tool by means of spring straps adapted to clasp the ends of the handle inserted in the eye, and a bolt inserted into the eye from the end opposite the handle, so as to engage the spring straps.

Mr. John Houck, of Tobyhanna Mills, Pa., has patented improvements in feeding mechanism for tubular cutter-heads used for turning broom handles, curtain rollers, umbrella handles, and other wooden articles of cylindrical form. Such machines have heretofore been fitted with feed rollers fixed at the front and back of the hollow mandrel to carry the sticks through, and in case of the sticks breaking, or when for any reason access was required to the mandrel, considerable time and labor were involved, as the rollers or the mandrel had to be removed from their bearings. The object of this invention is to fit the feed rollers so that access may be had to the cutter readily without disconnection of the parts.

A combined rule, square, and gauge for carpenter's use in framing, has been patented by Mr. Mahlon B. Cornell, of Philadelphia, Pa. The object of the invention is to furnish an implement adapted for carrying out all the purposes for which the ordinary square is used with greater facility, convenience, and accuracy.

Mr. Lucius S. Edleblute, of Cincinnati, O., has patented an improvement in the class of metal wheel hubs in which the spoke tenons or butts are clamped between flanged collars, one of which is adjustable on the axle box to adapt it for convenient adjustment or removal. By the peculiar construction and arrangement of parts the inventor forms a very firm, strong, and durable hub, whose parts may be readily put together or taken apart, and which is adapted to carry a comparatively large supply of lubricant.

An improved vehicle axle, patented by Mr. James Conniff, of Oconto, Wis., consists of an axle made of cast iron in a cylindrical form, and divided off at each end into compartments, in which are placed rollers in a circle, so as to form a bearing for the spindles which are inserted in the ends of the axle. The spindles are held in the axle by collars, which rest in one of the compartments between balls, which hold them steadily and prevent endwise motion without producing much friction.

Mr. Jacob Mollet, of Liberty, Mo., has patented an improved vise for holding saws while being filed, which is simple, convenient, and so constructed that the whole of one side of a saw can be filed without moving the saw. It may be used for holding hand saws, crosscut saws, and circular saws with equal facility.

Coffee in Typhoid Fever.

Dr. Guillasse, of the French Navy, reports that, in the early stages of the disease, coffee is almost a specific against typhoid fever. He gives to adults two or three tablespoonfuls of strong black coffee every two hours, alternating with one or two teaspoonfuls of claret or Burgundy wine. The beneficial effect is immediate. A little lemonade or citrate of magnesia should be given daily, and after a while quinine.