Correspondence.

The Electric Light and Heat.

To the Editor of the Scientific American:

There is perhaps no more curious phenomenon in electricity than the heating of the conductor by the electric force. The fluid theory clearly falls far short of a reasonable hypothesis, for the reason that the so-called electric fluid must be imponderable, and the imponderable is capable neither of combustion, nor of friction, nor of chemical action, nor of affecting ponderability or matter, some one of which functions is requisite to any production of heat, simply because an imponderable is nothing at all—imponderability having no existence. The theories of Ampère, De la Rive, and others practically resolve the electric force into an imponderable something, separate from and which affects the atomic particles of matter, and its propagation into an interchangeability of the polarities of the imponderability upon the faces of atomic particles.

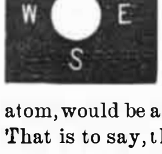
Ten cups of a Grove or carbon battery will instantly heat a fine platinum wire to redness, and instantly melt a lead wire of the same fineness. Nearly twenty cups will be required to raise an iron wire of the same fineness in the same time to the same degree of heat; about eighty cups, a gold wire; in the neighborhood of one hundred cups, a copper wire; and almost one hundred and twenty cups, a silver wire: the capacity of the several metals to propagate the electric force being about as follows, the comparison being with platinum indicated as a unit: Platinum, 1, lead, 1·1; iron, 1·5; gold, 8; copper, 11·5; silver, 12.

It will thus be understood that, as silver is about twelve times as good a conductor as platinum, it requires about twelve times as much battery force to raise it to a given temperature as it does to raise platinum to that temperature.

Assuming that we are in an experimenting room, observing the heating of a platinum wire by the electric force, we comprehend two facts: First, that the heat we witness is not by combustion; second, that there is no chemical action in the wire. These are really important acquisitions of fact, for we are at once brought to the positive conclusion that, as the heat is produced neither by combustion of the wire, nor by chemical action in the wire, it must inevitably be due to friction. To friction of what? Not of "interchanging imponderabilities," or nothings, which can neither themselves exert friction, nor influence matter so as to cause matter to exert friction; but of the motion of one atomic particle of matter with relation to another.

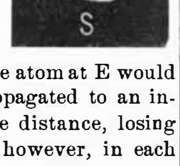
Except very indefinitely, no idea has yet been formulated of the action of a galvanic battery. Perhaps we may determine what that action is, taking as our basis the elements of zinc and a corrosive fluid, which in reality form the battery. It is a mistaken notion that the copper plate is an element of the battery. It in reality serves the same purpose in connecting a wire with the battery that the ground plate sunk into the earth at a telegraph station serves in giving a connection of the line with the earth. It is only necessary that this battery plate shall offer greater resistance to the action of the corrosive fluid than the zinc; and the greater the comparative resistance it offers the greater will be the positive force of the battery; for when the connecting plate is itself attacked by the fluid, it generates a counter electric force in the battery; and if it should be as readily attacked as the zinc, the generated forces would entirely neutralize each other. The copper plate is technically termed the positive or + pole or electrode, and it is in reality the positive electrode, when we consider that the action of the zinc and fluid is to set up repulsory vibration in the direction of the fluid and copper. Taking an atomic particle as naturally a sphere, what do we understand to be its alteration by repulsion?

Fig. 1.



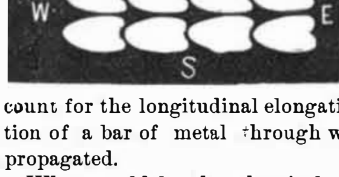
In Fig. 1 the atom is represented as having four cardinal points. Supposing this impact, or repulsion, to be exerted from the zinc electrode at E, the atom being understood as an atom of the corrosive fluid, the sphere would be flattened at that point, and the result, owing to the tenuity of the atom, would be a sort of ellipsoid (see Fig. 2).

Fig. 2.



That is to say, the impact at E would force the interior of the atom in the direction of W. It is obvious that the shape given the atom would be transferred to the next, and so on indefinitely, as also, owing to the cohesion of particles, to those parallel with it (see Fig. 3). So that the shape of the atom at E would

Fig. 3.



be propagated to an indefinite distance, losing force, however, in each successive propagation. I need not point out the fact that such a shaping of the atoms would account for the longitudinal elongation and transverse contraction of a bar of metal through which the electric force is propagated.

What would be the chemical result of such a shaping? The nature of a compound is such that a certain atomic condition is necessary to its becoming or remaining a compound. The change in that condition would of necessity result in decomposition or separation of the elements of the compound, as no two elements of a compound sphere would be capable of assuming precisely the same form, and hence the force of compound atomic cohesion would be nullified. There must be a different action of the atomic particles of matter, in order to produce the observed phenomena, from a mere circular or rotary movement, and something different from a closed circuit around the particles, or an interchanging of polarities of an extraneous imponderability. There must be a shaping of the atomic particles; and reasoning from analogy and the phenomena of repulsion and attraction, we must find in that shaping an approach both to concavity and convexity, concavity at that side of the molecule where the force of repulsion is exerted, and convexity on the opposite side. The concave point is therefore the point of attraction, as the cohesion of particles (supposing that we start from the — pole of a battery to a line of wire with the shape shown in Fig. 4 to the line) would cause the succeeding atoms in the wire to follow the concavity of the primary particle, and so on (see Fig. 5), the atom 1 being the primary atom, and 2 and 3 being the atoms in the line wire. Thus, what is repulsion from one pole of the battery to the wire is attraction from the other pole of the battery to the wire, the action always being from that pole of the battery which is put to the line; otherwise we should have in a line, say between New York and Washington, the following result, if we put at New York the repulsive pole to the wire.

Fig. 4.

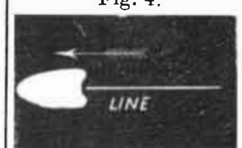


Fig. 5.

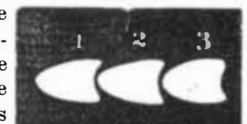
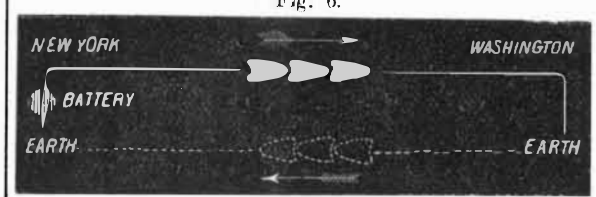
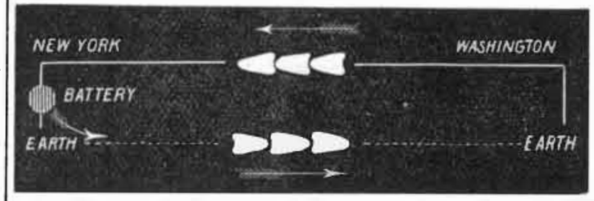


Fig. 6.



In this case the electric force, necessarily starting from the battery by repulsion, would appear at Washington a certain space of time after leaving New York. And if we should put the opposite pole to the line, we would have the following effect:

Fig. 7.



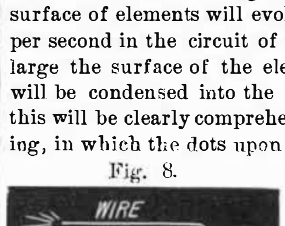
In this case the force would be manifested at Washington by means of the earth connection before appearing at the concavity pole of the battery which is put to the line. All this is assuming that the force is propagated solely by a forward motion or vibration--repulsion.

The clearest way of looking at the question is through the ordinary phenomena of push and traction. A person pushing a bar of metal forward with a certain force is exerting repulsion upon whatever is attached to the other end of the bar; if he draw the bar toward him, he is exerting the force of attraction or traction; in either case a period of time is occupied by the passage or propagation of the force from the person to the other end of the bar; in either case he is really exerting the forces both of repulsion and attraction. He is therefore imparting to the atoms of the bar a polarity positive and negative, so to speak, convex toward himself when he pulls, and concave toward himself when he pushes.

Returning to the galvanic battery, we find that there is a certain surface of zinc subjected to the action of the liquid. A certain number of molecular changes will be set up by this action. The changes must therefore be in the form of a vibration, taking for example a single atom of the metallic elements. The relation between the elements will result in an aggregation of force, which will convert the spherical atom into an ellipsoidal shape, which, immediately after its conversion, will return, or partially return, to its spherical shape. Then another aggregation of energy takes place in the elements, and the atom is again converted into a sort of ellipsoid, and again it becomes a sphere. These successive changes amount practically to a vibration of the atom, spherical to ellipsoidal and return, and spherical to ellipsoidal and return. If this accumulation and conversion were sluggish, there would not be a sufficiently rapid vibration to cause destruction of the force of affinity or cohesion, by which a compound is held a compound, and secure separation of the elements of the compound; but the vibrations of the atoms are so rapid that the force of cohesion, which is neutralized or disrupted by each vibration, is not sufficiently quick in action to restore the condition necessary to preservation of the compound in the time intervening between the electric vibrations; and as a result, the elements are separated, the compound is decomposed. This, I am convinced, is the phenomenon of electrolysis, though I have not space at present to elucidate all the features of the proposition.

It will from the foregoing be understood that a certain surface of elements will evolve so many molecular vibrations per second in the circuit of the elements, and that, however large the surface of the elements may be, these vibrations will be condensed into the connecting conductor. Perhaps this will be clearly comprehended from the following engraving, in which the dots upon the plate are supposed to represent the molecular vibrations set up in the element. The 7 vibrations set up on the plate, *b*, at the points, *c*, are shown by the dotted lines as condensing into the wire, and at the end of the wire, *a*, as distributing therefrom. Assuming that there are 100,000 atomic particles in a diametric atomic division of a No. 20 wire, and that the number of vibrations generated upon the surfaces of the elements of a single cell of battery is 10,000,000 per second: there will, theoretically, either be 100 vibrations per second of each atomic particle of the wire represented in force as 100,000, or 10,000,000 vibrations of each atomic particle represented in force as 1, which latter is doubtless the more correct assumption. Now as we increase the number of cups to 100, we obtain either 1,000,000,000 vibrations per second, or 10,000 vibrations of each atomic particle per second, or we obtain 100 times the force of vibration of each atomic particle. Supposing that we place in this wire a section of finer wire, in which there are but 100 atomic particles in a diametric division, it is obvious that the sphero-ellipsoidal vibrations of each atomic particle in this finer wire will be either 10,000,000 per second, or that the force of vibration will be increased 1,000 times. Though I have given no adequate idea of the vibrations generated by such a battery surface in a second, or of the number of molecules of matter in the atomic diametric division of a given wire, is it wonderful—is it not rather a simple and forcible comprehension—that this vast number of vibrations of the atomic particles per second, this inconceivably rapid impact or friction of one atom of matter upon another, should develop the intense heat we observe in electricity, or the violent detonations and disruptions of the metallic conductor? This is the only explanation of the electric heat, and we now perceive why it is that this intensest of heats may be produced without combustion.

Fig. 8.



I have said that I have given no idea of the rapidity of the electric vibrations. The electric force, when undisturbed by a counter force or an electric force of opposing polarity, has a speed of transmission half as great again as the velocity of light, or 288,000 miles per second. It produces not only the most intense heat, but the most intense light; and we have learned that to yield a deep red, the color of lowest pitch, it is necessary that the propagative atom of matter shall vibrate at the rate of 400,000,000,000,000 times a second. The color of highest pitch is deep violet, and the frequency of vibrations necessary to produce this color is 760,000,000,000,000 per second. The electric vibrations, the vibrations of the atomic particles of the conducting wire, which produce the red light, cannot therefore be less in number than the vibrations which are the requisite of the light. We stand amazed in the presence of such a mystery of motion, when each atom in the seemingly silent wire before us is endowed with life, pulsating at the rate of over 400,000,000,000,000 times a second.

I would not have it understood that I offer the exact form of vibration of the atomic particles, indicated in the engravings, as the absolutely settled actual form. Further research may modify the form somewhat; but we can accept it as a determined fact that it is a motion or vibration of the atomic particles in a conductor, themselves, and not an extraneous thing influencing the atoms, that yields the phenomena of the electric heat and light. W. E. SAWYER.

New York city.

Skinning a Rhinoceros.

To the Editor of the Scientific American:

On October 14 last, the rhinoceros and cage belonging to Adam Forepaugh's menagerie, while crossing a bridge about 10 miles from Schenectady, N. Y., suddenly broke through, falling about 12 feet upon a hard bottom beneath. The weight of the animal was 4,200 lbs. and of the cage about 4,000 more, making a total weight of over 4 tuns, which proved too much for the structure, which under ordinary circumstances was of sufficient strength. The cage had been drawn through the country by six pairs of large horses; and at the time of the accident, it had gone about half-way across, when the bridge gave way in the center and went down with a crash. The hind wheels going down first, the cage struck with great violence on the rear end.

The driver and horses escaped, strange to say, without accident. The animal struck with great force on his rump, demolishing the end of the cage. By great efforts the cage was extricated by ropes and pulleys from its unfortunate position, when it was found that its inhabitant was much the worse for the fall, having broken his back. He was taken a few miles from the place of the accident, and removed from the cage to a shed near the public road, where he lived a few days and died from the effects of his injuries. He was comparatively a young animal (about six years old), and had not at the time of the accident attained full growth. He was valued at about $8,000 previous to the accident. Parties interested in the New York State Museum of Natural History, at Albany, N. Y., at once set to work to secure the remains of the late rhinoceros for their already valuable museum; and after great effort they succeeded.

Those who have made natural history or dermatology a study are probably aware that the skin of a rhinoceros has an interesting feature which none but a close observer would detect. About the forelegs and partly on the sides of the animal are seen innumerable cracks or fissures in the skin, some of them nearly half an inch deep, running in every direction without any apparent regard to regularity; but upon closer inspection, the skin is found to be formed like a piece of mosaic work, laid out in pentagons. This peculiar feature of the skin is also noticed in some of the other animals, as the armadillo and a few others, and is best seen in the young animals. As they grow old, these lines of demarcation become obliterated. In the animal under consideration, they were shown very visibly. His teeth were all perfect and bones fully ossified; and upon the whole he was considered by a competent judge to be a great prize. Sixty hours after his demise, active operations were begun to divest the animal of that portion of his body which could not possibly be of any further service to him, to wit, his skin. The operation was skillfully planned by Professor Ward of Rochester, N. Y. assisted by Professor Lintner, the entomologist, Professor Hall the geologist, of the State Museum, and the writer of this article. Professor Ward who had done similar operations for elephants, hippopotamuses, whales, etc., converted this apparently formidable undertaking into a comparatively simple one. The rhinoceros carcass was first turned over squarely on its back, and maintained in that position by pieces of timber placed on either side. A longitudinal incision was then made, beginning at the lower lip and extending back to the tail. Then there were transverse incisions made, running up the inside of the leg. The skin was then pulled off, working downwards on both sides. The legs were disarticulated at the lower joints, leaving the feet on with the skin. The skin in some places where we made our incisions was fully an inch thick, and very tough, like cartilage. The greatest difficulty was experienced about the head. To peel off the thick clumsy skin from the head, without cutting it, proved rather tedious, especially so about the base of the horn. The horn is not attached, as might be supposed, to the bone beneath by an osseous union, but is merely a protuberance from the skin. Directly underneath it is a plate of bone, supported by elastic tissue, which yields like rubber when the animal strikes with his horn: otherwise he might render himself *hors du combat* by the concussion of the blow intended for his victim. This protuberance, though called horn, is found, when examined microscopically, to be made up of a mass of hairs, agglutinated and conglomerated, thrown out from a thick black basic membrane, from which the horn grows.

Six hours' hard work sufficed to complete our undertaking. The estimated weight of the skin was 300 lbs. It was at once boxed and shipped to Rochester, N. Y. with all despatch, where it is to be tanned and prepared for mounting or stuffing. Several months will elapse before this process will be completed. The reason of the great haste in getting the skin up to Rochester was that signs of decomposition in the structure of the skin had already made their appearance, though the viscera had not yet lost their natural heat. I have since examined at my leisure some of the blood of the animal, with the microscope, with particular reference to the size and shape of the blood globules. I find that they are not any larger than those of the human species; but as to their shape, I am not quite sure whether they are pentagonal or globular. I certainly have noticed among them well marked pentagons, while others were either globular or amorphous. Perhaps this variation in their appearance may be due to putrefactive changes, already in operation in the substance and structure of the blood globule. The flesh was removed from the bones, which were unjointed and also shipped to Rochester. It will require necessarily more time to prepare the bones than the skin. Probably a year will elapse before they are ready for the museum.

Schenectady, N. Y. M. G. PLANCK.

The Protection of Woodwork, etc.

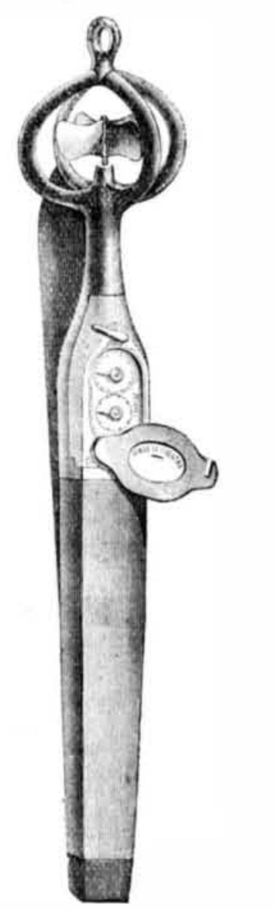
For the benefit of those who are concerned in wooden erections and preservation of timber, we here condense from the *Building News* some useful notes upon the subject. The woodwork we most require to protect is that exposed to alternation of dryness and moisture, such as our external architectural woodwork is. One of the safest remedies is to fill up all cracks with white lead ground in oil, or oil putty, before pointing. A sprinkling of fine sand over the paint while in a wet state has been used sometimes with capital effect, and we have had large boards, wooden cupolas, and wooden casements treated in this way. The sand renders the paint more durable. A paint made of subsulphate of iron, ground up with any oil and thinned with coal tar oil and a little pitch, is recommended. Coal tar and vegetable tar, obtained from pine timber, mixed with dry chalk, is also a good protective. Linseed oil and tar, in equal parts, boiled together and used while hot, after being scorched over by wood burnt under it, strikes into the wood, closes the pores, and makes an impermeable covering. For fences and rough wood, coal tar sanded over is recommended.

To prevent rot, nothing is better than a thorough seasoning, with proper ventilation. Charring timber, or creosoting it, will do much to arrest decay; but when once the dry-rot is found, a cure becomes necessary if we cannot remove or replace with new. A pure solution of corrosive sublimate in water, in the proportion of an ounce to a gallon, used hot, is an effective remedy. A solution of sulphate of copper, ½ lb. to a gallon of water, laid on hot, is recommended as another cure. Paraffin oil, or the cheapest naphtha oil, will stay the decay.

As preventives against marine attacks, coal tar, applied alone, or after a saturation of corrosive sublimate, has been effective in checking worms; also a mixture of lime, sulphur, and colocynth with pitch. To prevent worms in timber, an infusion of quassia is found to be an antidote, anything bitter being antagonistic to animal life. Creosoting is one of the best preventives, however, where it can be used. For articles of furniture a good coating with copal varnish in linseed oil is a method we can safely recommend. Even for external woodwork of ornamental kind, as gable boards and carved work, if the wood is properly seasoned, it is to be preferred to painting. Other insects, such as ants, infest woodwork in new houses. In larders and pantries they are particularly troublesome, frequently getting into preserves, under the crust of pastry, and into anything of a sweet taste. We may here specify a few of the remedies for this kind of pest: Corrosive sublimate, all essential oils, Bethell's process, powdered borax, petroleum oil, camphor, and creosote. The objection to the first cure is that it is a poison; but the other materials are almost as effectual, and can be easily applied. Sometimes, however, it is not desirable to wash or sprinkle our finer woodwork, such as carvings; and it is necessary to have recourse to another process to destroy worms in such work. We are repeatedly asked for recipes for this purpose, and we have given one or two remedies of a simple kind. One of the best modes is to fumigate the carvings or furniture with benzine. This may be done by enclosing the articles in airtight cases or small closets, and then subjecting them to the vapor of benzine, which penetrates the wood deeply. Sponge saturated with the benzine and placed in saucers is the simplest manner of fumigating. The fumes of chloroform have also been found destructive. Or the carvings may be saturated with a strong solution of corrosive sublimate, and afterwards varnished if thought desirable. (Probably the simplest plan is to immerse the article bodily in a bath of naphtha, as recently described in these columns. —EDS. SCI. AM.)

But the fundamental philosophy of the whole question of timber preservation lies in a nutshell. It is the evaporation of the juices and moisture—in one word, seasoning; after which it is only necessary to render wood exposed to wet impervious to it. Ventilation is more of a cure than a preventive, for thorough seasoning includes ventilation, and renders it less necessary; yet it is a precaution, and a very wise one. For wood not exposed, it is far better to leave it alone, or simply varnish it when quite dry.

LE COENTRE'S SOUNDING APPARATUS.



This new sounding apparatus, now supplied under government regulation to all French vessels of war, is illustrated in the accompanying engraving. It is very simple in construction, being nothing more than a small set of blades similar to those of a screw propeller, secured to a vertical shaft. These blades, as the apparatus descends, rotate the shaft, and the number of revolutions are registered by suitable dials in connection with simple transmitting mechanism. The lower part of the device is of lead of the usual weight for deep sea sounding. The principal advantage of the invention lies in the fact of its being indifferent to submarine currents or to rough seas. The blades are rotated only by its downward movement; and of course the more rotations registered, the deeper must be the water. The dials show the depth in meters.

Belting vs. Frictional Gearing.

In the early part of 1872, we published a series of carefully prepared papers on frictional gearing, giving results of experiments therewith, made to determine the percentage of adhesive force or traction of these wheels as compared with belted pulleys. From these tests it appears that the traction of the friction wheels was greater than that of the belted pulleys, and considerably more than is usually supposed to be obtained from belts upon pulleys of either wood or iron; and that, while there is a marked falling off in the adhesion of the belt as the work increases, that of the friction gear increases as the labor becomes greater.

We have lately received a letter from Messrs. Brownlee & Co., of Havelock, Marlborough, New Zealand, which details results considerably at variance with those above noted. Our correspondents say: "We had prepared plans for a saw-mill, to be driven by friction instead of by belting; but before ordering machinery, we came to the conclusion we had better make a trial on the same principles as set forth in the SCIENTIFIC AMERICAN" (alluding to the records of the tests given in the series of articles above referred to), "and obtained the following results, which rather staggered us: "Instead of a 6 inch belt, we used a 3½ inch on 17 inch pulleys. The belt without slip showed that 136 lbs. raised 70 lbs.; 320 lbs. raised 153 lbs. Friction gearing without slip, 136 lbs. raised 57 lbs.; 190 lbs. raised 54 lbs.; and 320 lbs. raised 84 lbs."

These last results, though not wholly in accordance with those given by the writer who communicated the articles, are reasonably near; but those given by the belting certainly are wholly out of proportion. Messrs. Brownlee & Co. say that they tried the friction gearing with one half the face, namely, 1¾ inches, and obtained the same result, that is, the same weight was raised.

This is an interesting question of practice, and probably some of our practical readers can throw some light on the wide discrepancy noted. We should very much like to hear, from mechanics who have tested the relative efficiency of belt pulley and friction gear, their views on the subject.

To rivet cold metal, use a ball-pened hammer.

Useful Recipes for the Shop, the Household, and the Farm.

The relative adhesion of nails in the same wood, driven transversely and longitudinally, is as 100 to 78, or about 4 to 3, in dry elm, and 2 to 3 in deal.

A quick method of screwing bolts that have been put in the lathe is to make two deep cuts along them with the screwing tool, as usual. Then take them to the vise, and with a wrench wind them through a solid die. They will thus be cut as true as though finished in the lathe, and all will be of one size, while at least one half the time will be saved.

To cut off the ends of bolts that were too long and have been turned down: Fasten a chisel in the vise with the cutting edge upwards, and rest thereon the end of the bolt to be cut off; then apply another chisel on the top of the bolt end, and strike as usual with the hammer.

Brass piston rings should have the split sufficiently wide to allow for expansion when hot; otherwise they will expand sufficiently to close up the split and bind in the cylinder thus causing them to cut, or become cut by, the cylinder. The same rule applies to brass piston heads.

Short screws or screws of small diameter, such as are usually cut by screw plates, should be cut as follows: Turn the screws as much too long as the thickness of the screw plate; then, for a distance from the end equal to the thickness of the screw plate, turn down the end of the screw so that it will nearly enter the screw plate without having any thread cut on it; and when the screw plate is applied to cut the thread, the reduced piece on the end will serve as a guide, keeping the screw plate true. The screw will fit down evenly all round the underneath face of the head. This method is much more rapid and as true as that of finishing the threads in the lathe.

Piston rings should be turned inside as well as outside, or that they will not spring out of true when they are split. The time required to turn them inside is not one tenth past of that required to true them in the vise, if they warp from being split.

W. S. G. says: When boils make their appearance, take a teaspoonful of soda in a glass of milk every morning and evening.

G. M. G. says: "To renovate oil cloths, dissolve 2½ lbs. paraffin and 1 gallon oil of turpentine by the aid of a gentle heat, and apply with a sponge or piece of flannel, while warm Let it remain on the oil cloth 24 hours; then polish with flannel. This solution not only renovates but preserves the cloth. I have used it on oil cloths which have been down 4 years, and they look as good as new. The same preparation may also be used on painted floors. When rubbed with flannel, it will have a beautiful gloss, equal to varnish."

W. L. T. says: To cleanse articles from tar, rosin, or any compounds of a resinous character, the use of flaxseed meal, moistened with water, is recommended.

A Plea for the Wild Elephants.

A correspondent of *Land and Water* calls attention to the slaughter of elephants, arranged to take place at Trincomalee, in Ceylon, on the occasion of the Prince's visit. The elephants are described as roaming about in large herds in the most tame and inoffensive fashion, almost heedless of man, for none have been shot for upwards of twelve months. There is at present such a large class of society in England, who advocate kindness to animals in all its forms, that we venture to predict that, when the battue and shooting down of these semi-tame elephants occurs, the accounts will be received in England by the humane and thoughtful portion of the community with feelings the reverse of satisfactory. It seems a pity to destroy, for the sake of simple sport, such useful intelligent animals as elephants. In destroying tigers and other strictly wild and destructive beasts, the sportsmen perform a public service, and this knowledge doubtless adds additional zest to the enterprise; but the wholesale destruction of these huge and valuable assistants to man, on the plea of sport, when their hunting and capture for domestication would be equally exciting and far more instructive, is a proceeding repugnant alike to the teachings of our flag, and to our humane ideas of advanced civilization. If the risk of life from the furious charge of a wounded bull elephant is required to establish the courage of their future king in the eyes of his Eastern Empire, let some other plan be devised, and let his millions of half civilized subjects practically associate his visit with recollections of mercy rather than with the wanton slaughter of animals almost idolized for their utility, and tractability—the most powerful, and yet the most docile, creatures in the universe. Wanton waste brings woeful want. The commercial loss, though large, in an elephant battue is not of so much consequence as the example. The wanton slaughter of buffaloes of late years on the American prairies, and of moose deer in Canada, has already excited the action of their respective Governments, and nearly every State of the Union has been compelled to pass severe repressive game laws to prevent the extermination of many of the indigenous birds and beasts, and this, too, in a wild country with almost unlimited range. We trust to hear that the royal party will have plenty of sport in every legitimate sense, but elephant battues are not legitimate sport. Sport is a misnomer: it is simple butchery.

THE British Admiralty having decided upon the construction of two despatch vessels to be made entirely of steel, the order for the plates and bars for the same has been given to the Landore Siemens Steel Company, of Swansea, who undertake to supply a very mild steel of high quality.

M. SEBILLE, a French architect, injects bricks with tar and finds them impermeable to humidity