The Winans' Steamer.

MESSRS. EDITORS—In a communication from me, an extract of which was published in your paper a few weeks since, you evidently mistook my meaning as regards the concentrated strains in vessels; therefore I trust you will allow me a short space in the columns of your journal, in order that its many patrons and readers may properly understand the position I take as regards the construction of vessels upon the cigar or spindle principle. In the communication alluded to, the idea I meant to convey was, that the spindle had this advantage over the cylinder, that an exact calculation could be made as to where the strain would fall, let the force or blow come from any direction, and strike on any point in its form. In a cylinder this could not be done, for the simple reason that each transverse diameter of the cylinder when in a state of rest, in smooth or still water, sustains an equal strain, but poise it upon the pinnacle of a wave on (say) its center diameter, and this equality is destroyed, the strains concentrating over the point of intersection, it would receive but little support from its adjacent diameters. In the spindle it is the reverse of this, for if it be poised on its greatest diameter, each and every diameter to its extremities would receive its due proportion of strain.

J. W. NORCROSS.

Cicero, N. Y., January, 1859.

[The above is only part of the letter which our correspondent has sent us. It is an explanation of his views in reference to the focus of strain in this steamer. The part which we have omitted is in advocacy of the stability of the spindle form. As we have given the views of the Messrs. Winans' on this point nothing further is necessary, especially as the vessel itself will soon prove who are right and who wrong in their calculations. In suspending discussion on this subject for the present, we must emphatically say that we cannot conceive of a worse possible form of a steamer for sea-going purposes. The load water-line will differ with every inch of immersion, and if she draws over eight feet, her horizontal lines will be somewhat bluff, her nose will be continually under water, and she will be in danger of being buried under the waves in crossing the Atlantic.

We learn from the Baltimore *Sun* of the 21 ult., that this steamer has made a short trial trip in smooth water, and it is stated that it made about twelve miles per hour, but that the whole power of the engines was not applied. From the published account we have not been able to learn any of the particulars of the vessels' performance, except that it was very lightly loaded, drew only about six feet of water, and that good ventilation was obtained.—EDS.

The Cigar-shaped Steamer Adapted for War.

MESSRS. EDITORS—In the various comments, *pro* and *con*, that have appeared in your valued journal respecting the Messrs. Winans' new steamer, I have noticed no hint of one use (whether it was ever so intended by the makers or not, I am unable to state); I refer to the possibility of making such a vessel a means of naval defense, by attacking and sinking an enemy's ships. No one has contested that in smooth water, and with engines of such immense power as hers are (relatively), compared with her size, that she could move forward with tremendous force and swiftness. The sharp-pointed prow, armed with solid iron or steel, would glide through the waves just below the water-line of a vessel. From her circular construction, such a steamship could be made almost ball-proof; but her efficiency would be in her swift movements, and the awfulness of the surprise and danger to the party attacked. Imagine a war between this country and France, and the port of Baltimore blockaded by a large fleet of frigates: the time 2 o'clock A. M., on a dark morning. Suddenly the watch on the outside frigate hears a most energetic snorting, which rapidly approaches. He little heeds it at first, supposing it to be merely a ferry-boat, but the alarm becomes general when an attacking vessel rushes like a tornado on the enemy; she strikes, and makes a hole as large as a hogshead. What consternation, as the frigate rapidly fills and sinks! No idea would arise of pursuing the little wasp that had stung the lion fatally; self-preservation would be the only thought, and probably few on board a ship so attacked would survive. The said little wasp, rapidly backing off, could attack and sink a dozen vessels in an hour, the crews of which would be paralized with fear, at the terrible energy of the attack, and the imminent risk of all their lives at once.

I therefore regard the invention as of great importance in this view, and it should be secured, if possible, to our country. With such vessels known to be ready on our coast, no hostile fleet would dare to anchor in one of our harbors; and the crew of every enemy's vessel anywhere near our coast would be in constant trepidation of being sunk in a moment—even perhaps in broad daylight—by one of these horrid little black "punches" with smoke-pipes. S. H. N.

Philadelphia, January, 1859.

Defects of Gutta Percha.

MESSRS. EDITORS—I have observed that gutta percha, when used as a covering for submerged wires, becomes, after a time, quite brittle; it is then liable to crack open, as if cut across with a knife, when bent or made to take a short turn. This difficulty is not obviated by the use of several coatings, as they adhere so closely together that a crack will extend through them all to the conducting wire. An ocean cable, however carefully paid out, is pretty sure, while passing over an uneven or precipitous bottom, in deep water, or through strong under currents, to get "kinked" occasionally. If the gutta percha covering does not, in such cases, open at once, and thus very much injure or entirely destroy the insulation, it would seem likely, from continued tension, to do so sooner or later. I would suggest as a remedy for this apparent defect in the present mode of insulating submarine cables, the employment of a combined covering of gutta percha and hemp, or other fibrous substance, in alternate layers—first, a coating of gutta percha, over this a thin coat of hemp saturated with boiling pitch, then a second coat of gutta percha, another of hemp, and a third of gutta percha; outside of this a wire or hemp covering, or one of both, twisted or braided, as has been used, or proposed by others, could, of course, be placed. The layers of gutta percha being thus separated, a crack through one would not affect the other. A cable so constructed would also seem less likely to receive serious injury from any of the various forms of mechanical violence to which it must necessarily be subjected. I. H. NORRIS.

White River Junction, Vt., 1859.

[The information of our correspondent concerning the defects of gutta percha is very useful. The insulating covering which he proposes is similar, if we recollect clearly, to that of the cable which crosses the Ohio river, and which was laid down several years ago under the direction of T. P. Shaffner, Esq.—EDS.

Tanning.

H. Lees, of Salford, England, has taken out a patent for tanning hides by first steeping them in a thin solution of mineral tar, and afterwards in another of alum. This process may effect, as it is stated, the rapid tanning of hides, but unless some substance is also employed to remove the smell of the tar, no person would use such leather.

IT has been estimated that England pays three millions of dollars annually for manure.

Ships of War.

A very interesting paper was recently read on "The Ships of the Royal Navy," before the the Society of Arts, in London, by E. J. Reed. From it we learn that until very recently the ships in the British navy were inferior in model and build to those of every other nation, and that vessels captured from France, were, for many years, English models. Since the introduction of steam, great improvements have been made in every department, and the ships of the present navy of Great Britain are as different to those in vogue forty years ago as horses are to donkeys. They have now a fleet of screw steamers, consisting of fifty-one line-of-battle-ships, each armed with eight-inch shell guns and 32-pounder solid shot, together with one and sometimes two 68-pounders. There are also nine block-ships, armed with eight-inch shell guns and 68 and 32-pounders, and four ten-inch guns to each. There are also twenty-eight frigates, powerfully armed, besides thirteen corvettes carrying each two eight-inch shell guns and one 68-pounder or one ten-inch shell gun. There are four mortar frigates, carrying thirteen-inch mortars and 68-pounders, eight floating batteries armed with 68-pounders, twenty-seven sloops, with 32-pounders, twenty-six gun-vessels with 68 and 32-pounders, and 163 gun-boats, each carrying one 68 and one 32-pounder—in all 331 steam vessels. A comparison is made between American ships and those of England, and it is admitted that the *Merrimac* and those large steam-frigates lately built are equal to the best frigates in the British navy; still, it is maintained that the engine-power of the latter is superior to that in American war vessels, which gives them a great advantage.

A very great change has taken place in regard to the size of ships, the frigates of the present day are of one-fourth greater in tunnage than the largest line-of-battle-ships of fifty years ago. In the British navy, at the present time, there 607 fighting ships of all classes of an aggregate burden of 665,220 tuns, with a steam power equal to that of 100,000 horses, and involving a cost of about $140,000,000. There is incessant activity displayed in all the dock-yards, and the utmost attention is now being paid to the construction of powerful rifled breech-loading cannon.

In the paper read by Mr. Reed on this subject, he states that Capt. Ericsson, of this city, in 1837, made a very favorable run down the Thames river with his screw propeller having the Lords of the Admiralty on board, and "that notwithstanding the success of this experiment and the manifest advantage of a submerged propeller for a ship of war, the chief of the Admiralty Board made no sign in favor of the new propelling instrument. Capt. Ericsson therefore took it to the United States, where it was soon afterwards introduced into the American navy." It was not until 1845 that the screw propeller was introduced into the British navy, and such has been its success since then, that every vessel now built for that navy is a screw steamer—the paddle-wheel having been entirely superseded by it. The least thing which the British authorities can do, in consideration of what Capt. Ericsson has done for their navy, by arousing public attention to this superior propelling device, is to render him a respectable equivalent for the benefits derived from his services. This suggestion is made as a question of public justice, as we understand that Smith & Woodcroft—subsequent inventors—have both been rewarded by the British government.

CHARLES BONELLI, the well-known electrician and director of telegraphs at Turin, is at present engaged in a vast project for connecting Genoa with Buenos Ayres by means of an electric cable. This plan possesses an advantage over the Atlantic cable between Valentia and Newfoundland, as it is divisible into various sections not exceeding 900 miles, while the Valentia cable measures 3,000.

Notes and Queries

*** PERSONS who write to us, expecting replies through this column, and those who may desire to make contributions to it of brief interesting facts, must always observe the strict rule, viz., to furnish their names, otherwise we cannot place confidence in their communications.

TO CORRESPONDENTS.—We are happy to have secured so large a share of the public confidence in our opinions, as shown in the voluminous correspondence which we are able to carry on by mail, and through this column. On one day, during this month, we received no less than 180 letters, and so complete is our system that scarcely one of them remained two days unattended to. We are always pleased to give our friends all possible attention, but we beg to be spared the trouble of reading letters about the power of onion juice on the eye, price of pop-corn, apple-sauce, geese, prairie-chickens, etc.

M. L., of Mass.—You never can obtain a steady motive power of any consequence from the currents in tall hollow shafts or chimneys. The force of the current would be due to the small difference of temperature between the upper and lower strata of air.

E. S. S., of Mo.—To imitate rose by staining white-wood, use a strong solution of redwood and fustic for the first coat, and on the top of this a strong solution of logwood in grain streaks. Furniture varnish is made by dissolving 5 lbs. of shellac and 7 ounces of mastic in 6 pints of cold alcohol.

A. J. S., of Min.—A cement for mending articles of cast iron consists of fine clean iron turnings mixed with a small quantity of sal-ammoniac and some flour of sulphur made into a paste with a little water. Fine powdered plaster of Paris made into a creamy consistency with water is used as a cement for marble.

W. H. S., of Miss.—We do not know where you can get a good work on acoustics as applied to buildings.

J. McM., of Ill.—Write to Messrs. Hoe & Co., this city, and state what size of cord wood you intend to cut, and they will inform you what size of circular saw is best for the purpose, and the price of it.

D. M. C., of Ala.—We are not acquainted with a single good work on "common oil painting."

C. H. B., of Mass.—A strong solution of glue cannot be kept in a liquid state without heat. If alcohol were a solvent, it would prevent it from freezing, but it is a precipitant. By heating and cooling a solution of glue four or five times in succession, it does not congeal so readily afterwards.

M. C., of Vt.—The extract of oak or hemlock bark is as good a substance as you can use for the removal of incrustations in boilers. If you cannot obtain this, use common molasses.

J. G. B., of Mich.—We have seen a Smee's battery with only six square inches platina to sixty of zinc; eight square inches of negative metal will answer for sixty-four of the positive.

D. S., of Pa.—The application of an old device to a new purpose is not a patentable feature. Blanchard's lathe was originally patented as a machine for turning gun stocks, but it is now used in the turning of busts, axe-helves, &c. A patentee can use his machine for any purpose.

H. E. Y., of Mo.—A patent could not be obtained for building a saw-mill on a boat or other floating device. On the upper Rhine, in Germany, we have seen grinding mills so constructed; and have had models of sawing mills so arranged sent us. No patent could be obtained for such a device.

O. C. J., of Ill.—There is no encyclopedia of arts and sciences now in the course of publication in our country. It will do you no harm to accept the calculation of the comet's velocity, on the page referred to, as correct. We could not advise you to swallow anything above that estimate, for we think the comet speculations are coming it pretty strong as it is.

J. B. P., of Pa., proposes the following profound enquiries for scientific analysis: First, "Why is it that in a glass lamp with a smooth surface, warm lard or other congealable liquids, will thicken soonest on the side of the lamp that is towards a fire?' Referred to some of our Cincinnati friends, who are familiar with all the eccentricities of pork and lard. Second, "Why a small piece of steel, such as a darning needle, one end being placed between the teeth while preparing onions for the table, will protect the eyes, and render the preparing of onions as harmless as that of potatoes?" Referred to the Onion-grower's Association, of Weathersfield, Conn., to report on at its next sitting.

J. C. K., of Ark.—It is a mere superstition to suppose that quicksilver thrown into the creek would cause the rocks to explode on which your dam is built. The water found access through some fissure in the limestone rock and thus tore up the foundation of the dam.

H. L. E., of Mass.—We thank you for your note of the 17th. Should be pleased to hear from you often. Shall soon publish some additional useful information about girders.

A QUESTION FOR SOLUTION.—A correspondent inquires, "Suppose a man and a girl were to get married the man is 35 years old, and the girl 5 years, this makes the man seven times as old as the girl, and they live together until the girl is ten years old, this makes the man forty years old, and four times as old as the girl, and they still live until she is fifteen, the man would be forty-five, this makes the man three times as old, and they still live on till the girl is thirty years old, this makes the man sixty, only twice as old, and so on. Now, how long would they have to live to make the girl as old as the man, at the same rate of reasoning." We would refer him, for the solution, to some of those mathematical students who are endeavoring to square the circle or discover perpetual motion.