[For the Scientific American.]

Parker's Water Wheel.

As you are frequently asked by many of your correspondents which is the best iron water-wheel, it may be some advantage to your inquiring friends to have a statement of the performance of a set of Parker Turbines (if you choose to call them so), that have been in successful operation for two years in the paper mill of Mr. C. Van Reed, residing in Reading, Berks Co., Pa. There are four of these wheels working on vertical shafts, all geared by bevel cog-wheels to one line shaft, from which the power is taken to three rag-engines by belts. The water-wheels are four feet diameter, each wheel issuing 350 square inches, or the four wheels jointly 1400 square inches of water, and make at work 65 revolutions per minute. The whole head or pressure of water on the wheels when at work is but two feet three inches.

Mr. Van Reed gives as a statement that his mill is regularly started on Monday mornings, at 3 o'clock, and runs steadily till Saturday night at 12 o'clock, making 141 working hours per week, and that their regular week's work is to turn out 4,000 pounds of paper, from coarse hard stock, suitable for books or newspaper. Previous to getting the Parker Wheels he used for his motive power an undershot wheel, the gate orifice of which was 2200 square inches, the power of the wheel was only sufficient to drive two of the rag-engines at a time; and he had a steam engine to drive the paper machine, and to assist the water wheel when there was back water, or a scarcity, to make up the deficiency of the power required. Since he has adopted the Parker wheels above described, with an addditional one to drive the machine, he has dispensed with the use of the steam engine entirely, finding he has abundant power without it. The amount of water discharged per minute by the four wheels is 5,248 cubic feet; and the estimated power at 70 per cent. of effect is 15·65 horse-power. The amount of work performed is usually estimated to require 20 to 24 horse-power, which would indicate a very high percentage of power for these particular wheels. And we think the world might be safely challenged to produce as high a performance with the same amount of water and under the same head. O. H. P. PARKER.

Philadelphia, Feb. 9, 1854.

Governor's of Engines.

MESSRS. EDITORS.—In vol. 9, No. 18, of your paper, Mr. Mascher says:—"All governors that I ever saw applied to steam engines are not governors, properly speaking. I might call them ameliorators inasmuch as they govern the variations only partially." This defect I have spent a great deal of time and money to remedy. In examining the principles of action of the old fly ball governor, I found there was much more motion in the balls than in the hub that actuates the valve, in consequence of the balls depending on centrifugal force for their action, and the more speed, the less power is there to act on the throttle valve. To remedy this I found that the weights or balls should run parallel with the spindle, and move the valve an equal distance with the weights so as not to have any lost motion. I have attached four disks, (two will do) with flat surfaces to four arms cast solid in the hub. To the hub is attached a spiral, so that a spindle passes through both freely. The spindle has a pin and roller for the spiral to rest upon. When the spindle is put in motion, the weights or disks will not immediately partake of the same motion as the spindle, consequently the roller will be driven under the spiral and raise the disks, arms, and hub, together with the valve attachment equal hights—the atmosphere assisting to keep it up by retarding the weights or fans, —and will hold them there. But if the spindle slacks its motion in the least, the weights by their momentum will continue to move on aud drive them down in proportion as the spindle is changed, and so on alternately, acting on the principle of a fly wheel loose on the crank shaft. Mr. M. says, "the action of the governor depends on two forces, centrifugal and gravity," and "the balls should move in a certain curve."—You will see that this spiral governor has no "centrifugal" force to actuate it, neither do the balls "move in a curve," the curve being in the spiral near the centre of action, this curve usually being semicycloid or any other curve to suit the work, and the goveror may be driven at any speed and can be varied to suit any requirement. Mr. M. hopes these glaring defects will be obviated before the next World's Fair. The defects were removed before there was a Worlds Fair—in this country at least. I had it on exhibition at the Crystal Palace but found it difficult to attract the attention of the knowing ones. Not an editor to my knowledge noticed it as any thing novel or useful, neither did the jury apparantly see in it anything worthy of more than honorable mention, an article that I have plenty of, from those that have them in use, notwithstanding it has all the qualities you or any other person desire, being unlimited in its mode of construction and action. JOHN TREMPER.

[This governor was illustrated on page 244, vol. 8, Scientific American. Mr. T. must excuse the editors and reporters of our daily papers for their oversight: they cannot be expected to possess an accurate knowledge of what is new, good or bad in engineering apparatus. The same apology may be made for the awarding Juries at the Crystal Palace, if we may be permitted to take their decisions for a criterion to judge from.

Putrifaction of Fish by Moonlight.

MESSRS. EDITORS:—It is a very general tradition that fish and meat decompose most rapidly during moonlight nights. I have recently had my attention directed to an explanation of it, which I copy verbatim from page 143 of "Familiar Science," by R. E. Peterson, of Philadelphia. He says:—Ques. "Why is meat very subject to taint on a moonlight night?—Ans.:—Because it *radiates heat* very freely on a bright moonlight night; in consequence of which it is soon covered with *dew*, which produces rapid decomposition."

Now, dew may produce decomposition, but is moonlight essential to the deposition of dew? Will not a deposite take place on a moonless night, when the other conditions of clearness, calmness, &c., are present, as effectually as on a moonlight night? I was not aware that radiation was more rapid on a moonlight night than any other, if the latter were equally clear and still.

Another explanation I have heard, viz., that the chemical ray predominates in the light of the moon, and hence chemical action is produced more rapidly in it than in sun-light, in which the calorific aud colorific rays predominate.

At any rate, be the explanation what it may, all the old housekeepers say it is a fact, and on that account they never hang out their beef in moonlight, when curing it. T. R. J., Jr.

Accomac, Va., Feb. 9, 1854.

[The last explanation of the phenomena appears to be philosophical; but we are not yet positive that fish putrifies more rapidly in a moonlight than any other night: we know it is not so during frosty weather. The question of frozen fish coming alive again, was settled for ever, last year, through the columns of the "Scientific American." Who will settle the question of the effect of moonlight upon meats and fish.—ED.

To Detect Cotton in Woolen or Silken Fabrics.

MESSRS. EDITORS—I have just read an article in your excellent paper of this week, headed with the above title, in which Dr. Pohl is shown to employ a certain chemical preparation for the detection of "cotton in woolen or silk fabrics," to which you add your more simple yet equally effective test, for this detection, and more readily practiced by every one.

It appears evident that your aim and object is to benefit the whole human family, "both great and small." Therefore I conclude to give another means to test the above, still more simple than yours, or at least more readily attained, inasmuch as the majority of purchasers in retail stores would not feel free to apply a lighted match to ascertain the material of which the cloth is composed, however important it might be to know the fact. My plan, long since adopted, is to draw out a thread and put it between the teeth, by which the material is easily detected; silk, wool, and cotton, each has its own peculiar feeling to the teeth, which, with very little practice, can readily be detected by any one, not only without expense but without attracting particular attention. L. A. S.

Oakendale Farm, Feb. 10, 1854.

Trial of Reapers.

MESSRS. EDITORS:—As a manufacturer, I desire to enter my protest against any more petty trials of reapers. They cost a great deal and amount to nothing. The decision at one trial is reversed the next week at another, perhaps with the same machines, and often the competitors can show their defeat was owing to some extraneous circumstance, as not having a suitable team, bad driving, or unfortunate management in some way.

A reaper trial is not like a horse-race, where the sole object is to beat, regardless or everything except the coming out ahead; it is, or ought to be, to ascertain surely which is the best machine, and not so much to benefit the owner, as the farmers, who wish to know what kind to buy.

How absurd is it for any set of men—I care not how great their experience and judgement—to take from three to a dozen reapers, perhaps all of acknowledged merit, and by the cutting of two acres each, as was done at the Wooster, Ohio trial where mine was defeated; or even by cutting five or six acres as at the Richmond, Ind. trial where mine was victor, deside positively and absolutely that one reaper is better than all others.

Such a trial might show whether a reaper would work or not, but to judge between rival reapers, of which there are over twenty of established reputation, each having its points of excellence; a long and thorough trial must be requisite, to see how they work in different kinds of grain, and under varied circumstances, and how they wear. A trial to be decisive should go through an entire harvest. One, too, that was thorough and reliable, would be equally available in one State as another. They are also expensive to all concerned. I would therefore propose a general trial on something like the following plan:

Let several State Agricultural Societies unite, each appropriating $200 to $500, and appointing one or two committee-men, in whose experience, judgement and fairness, entire confidence could be placed. Let the committee make their arrangements early as possible, adopt their rules, and appoint time and place of first meeting. They might begin South and proceeding North continue the trial for weeks if necessary, leaving out one machine after another as its inferiority became manifest.

The committee should have all their expenses paid, and perhaps compensation besides; and the cost of removing reapers from place to place might also be borne by the committee, in order to enable every builder to come into the trial; and for this reason I would not require any entrance fee, though some of the larger builders would doubtless be willing to contribute to the general fund. If five or more societies can be got to unite in such a trial, I will contribute $200 to $500, or as much as any other builder.

The surplus funds should be divided to the best machines, say half to the first, one-third to the second, and one-sixth to the third, to be paid in plate or money as might be desired by the winner.

To save time and expedite arrangements, I would suggest to parties interested to correspond with Col. B. P. Johnson, Secretary N. Y. State Agricultural Society, Albany, N. Y. I have not communicated with him, but am quite sure his interest in agricultural matters will cause him to bear the labors with cheerfulness. J. S. WRIGHT.

Chicago Ill. Feb. 7th, 1854.

Electricity as a Motor.

Prof. Lovering, in his eighth lecture on Electricity, before the Boston "Lowell Institute," said:—"Electricity would never be used generally for the purposes of mechanics or locomotion because of its expensive character, twenty-five cents expended in steam being as productive of power as two dollars expended in electricity. It is true that it is used in producing some of the very finest portions of astronomical instruments, in operations where extreme delicacy of motion is requisite, yet *electro-magnetism can no more supercede steam than steam can supercede gunpowder*. Each has its peculiar sphere."

[This is also our view of the subject as it relates to expense, but there is a more fatal objection still to the use of galvanism as a motive power,—we allude to the delicate nature of electro-magnetic conductors in machines, and the sensitiveness of the current to atmospheric influences. Steam is perfectly under the control of machinery, but the electric current is not, at least by any known appliances. An electro-magnetic engine of 10 horse power, by the simple disarrangement of one wire (not easily discovered) will not give out over 1 horse-power. The management of the batteries, also, is difficult and troublesome, and not to be compared in simplicity to the furnaces and boilers of a steam engine.

Spinning Zinc.

John Newell, of New York City, has invented an improved mode of spinning zinc. Owing to the brittleness of this metal, the production of forms having deep depressions or high projections, by the process termed spinning, has been very difficult, and this improved mode is intended to overcome this difficulty and render the metal ductile. This is accomplished by the application of coup oil to the zinc before and during the process of spinning, the action of which, upon the metal, tends to increase its tenacity. By this process, lamps and all articles now made of Britannia metal can be produced cheaper than by its use. The inventor has applied for a patent.

Immense Steamship.

A new and powerful steamship called the Himalaya has been built in England for the Peninsular and Oriental Steam Navigation Company. From the Thames to Southampton, her average progress during thirteeen hours that she was under way, notwithstanding unfavorable weather during part of the time, was 13½ knots per hour.

The Himalaya is said to be the largest steam-ship in the world. She is 3,550 tons register, and equal to over 4,000 tons burden. She is 372 feet 9 inches in length, exceeding the length of the Boston clipper, Great Republic, lately burned at New York, by 47 feet, but not of equal tonnage. The Himalaya is a screw steamer built of iron, and has engines of 700 horse power. She has accommodation for 200 first and second class passengers—stowage for 1000 tons of measurement goods on freight, and can take 1200 tons of coal.

The Steamer Wm. Norris.

We have seen it stated in one paper that this steamer which is now building, and which Mr. Norris declared would cross the ocean in six days, has been sold to the Czar of Russia, and by another paper to the Sultan of all the Turks.—Both of these reports are no doubt untrue.—These Royal persons—Bear and Turkey, what do they know about the Wm. Norris. Neither the builder nor the engineer can for a moment be accused, of being afraid to stand before the world in endeavoring to fulfil their promise of crossing the ocean in six days.

Half Bricks.

We believe that a benefit would be conferred upon masons, if brickmakers would mould half-sized as well as whole bricks. Half bricks are often wanted for beginning and finishing rows, so as to have every alternate row break joint. To obtain these, the masons have to break whole or trim broken bricks. This occupies considerable time which would all be saved by half mould bricks, of which a certain number might be made for every thousand of whole bricks of the common kind.

Another American Yacht Victory.

A very exciting and agreeable aquatic race lately took place at Melbourne, between the "Pride of the Seas," an American schooner of 240 tuns burthen, by G. W. Steers, of this city, the designer of the "America," and a yacht named the "Lelia," recently built in England, and of a beautiful model. The latter was fairly beaten in a race of about 30 miles.