

In another part of his work, Mr. Burgh, in describing a steam engine, states that it has a cylinder and a central rod, to which is attached "an opaque piston." Recovering from the stunning effect which this intelligence naturally produced on our sluggish mind, we reflected that as cast iron is usually quite translucent, it was an advantage to have this special piston "opaque," inasmuch as common people would be quite unable to see through it.

We cannot sufficiently admire the boldness and versatility of Mr. Burgh's mind. Whatever he bends his attention to, falls before his all-conquering intellect. He not only grapples with the mysteries of the steam engine, but he swoops upon the Latin tongue, and presses that into his services to make his machinery and his views plain to the unlettered reader.

A variety of quotations are introduced, which come before us with the charm of novelty beaming from them. As for example, on page six we read that "the truthful application of natural laws will be attended to *per se servatim*," and on page five a certain arrangement is "not unworthy of comment *ad valorem* of the arrangement *per se*." *Ab initio* is also a favorite phrase with Mr. Burgh. It must not be supposed, however, that such a daring spirit willingly brooks the conventionalities which hampered "our forefathers" in reading the Latin tongue. Not he; in some instances he yields to the prejudice and bigotry of the day, and employs the standard spelling, but we notice that on page eighteen he breaks forth into this masterpiece: "The cause for the recognition of some promulgations is that in allusion to the originators, the phrase of *suum cuique*, shall be in full force." If the perpetrators of the "promulgations" alluded to, survive this, they may boast of the most vigorous constitutions.

But lest we seem to pursue this subject with too great detail, let us stop at once. The English language is capable of expressing simple ideas very clearly, and it is the extreme of bad taste to interpolate foreign phrases; particularly out of place in mechanical works.

Future numbers of this work will contain plates and cuts of all the latest marine engines, which we shall examine with great interest.

Brazilian Exposition of Agricultural Machines.

This exposition will be opened on the 19th of October next, and closed on the 2d of December, 1866, and the following regulations and instructions for the special exposition of machinery and instruments manufactured in foreign countries, for the cultivation, preparation and improvement of agricultural products, are published for the use of those it may concern:—

First, All machinery and instruments will be admitted to the exposition when followed by the following inscription "Foreign"—with the name of the manufacturer, inventor, and cost of each.

Second, Said machines and instruments will have no right to premiums, and should be worked by proper persons employed by the expositors, on the days and hours appointed.

Third, The necessary space and steam power will be furnished free for the working of the machinery.

Fourth, No machinery to be admitted which will require foundation or special constructions, or is already known or used in Brazil.

Fifth, All machinery to be taken to the place of exhibition by the expositors at their own expenses.

Sixth, No machinery to be removed without special permission.

Seventh, After the exposition is over, said machines may be sold after satisfying the conditions of art. 12, sec. 3d, free of expense to the managers.

Eighth, Tickets of admission will be furnished to those working and giving explanations in regard to the machines.

Ninth, Those wishing to take part in the exposition will give due notice of such intentions to the Brazilian Minister (in New York), with full particulars of their machines.

Tenth, All empty boxes and packages to be removed by the expositors when advised to do so, otherwise to be sold for the benefit of the exposition.

Eleventh, The managers to have the right to exclude any machine or instrument which is not under the conditions of article fourth.

Twelfth, The dispatch and clearances of machines and instruments at the Custom House are—

1st, To be received at the Custom House and sent to the place of the exposition without being opened, or paying duties, all packages destined to said special exposition and directed to the Board of Managers.

2d, The expositor or agent to make a declaration of the contents and value of each package, and sign a bond for their re-exportation or the payment of duties in case of being sold.

3d, All goods so imported and not re-exported, will be subject to a duty of 1½ per cent *ad valorem*.

4th, All packages will be sent from the Custom House under the care of an officer.

5th, Packages only to be opened at the place of the exposition, before an officer of the Custom House, who will examine the contents according to sec. 2, and subject only to the conditions of sec. 2d and 3d.

6th, All machinery and instruments sold not to be removed until all the Custom House dues are paid.

Board of Managers, Rio de Janeiro, February 19th, 1866. Luri P. Couto Ferrar, President.

By order D'AGUIAR.

Consul General of Brazil,
No. 13 Broadway, New York.

New Agent for Deadening Pain.

An important addition to the means of diminishing pain has been made by an English physician, who has introduced a new method of producing local insensibility to the knife. Chloroform robs the most terrible surgical procedures of the worst horrors which formerly surrounded them, and has even rendered possible some operations which could hardly have been attempted without it; but it has its own peril—the peril of death. Surgeons justly encourage their patients, by reciting to them the statistics of fatal accidents under chloroform, which, incomplete though they be, demonstrate the extreme rarity of such misfortunes. It has, however, been observed by all authors who have collected these cases, that a remarkably large proportion of the recorded deaths have occurred where only minor operations have been contemplated. Hence a rapid and efficient means of producing local anæsthesia, and one free from any of the constitutional risks attending the administration of chloroform, is a boon of great price. Dr. B. W. Richardson effects this result by directing on the skin a finely divided spray of pure ether, using an ingenious modification of the spray tubes, lately much in vogue as toys, for diffusing perfumes. A rapid blanching of the skin, and insensibility to pain, follow in from about thirty seconds to two minutes. Upward of a hundred operations have recently been painlessly conducted under this method. It is only likely to be generally useful for superficial operations; but these are so often undergone at the cost of great terror and anguish, through dread of the risks of chloroform, that the value of this invention must be very great.

[We find this extracted from some unknown source into one of our exchanges. The external application of ether has long been practiced, but this mode of employing it in spray may be an improvement.—EDS. SCI. AM.]

Name of Weights and Measures.

At a meeting of the Polytechnic branch of the American Institute held April 19th, there was an interesting discussion on the importance of legalizing in this country the decimal system of weights and measures, according to the French standard, already in use among scientific men of all nations, and which will probably be soon adopted in Great Britain. A new point was raised regarding the nomenclature. The Chairman, Prof. Tillman, said there could be no question as to the utility of the proposed reform, which would effect a great saving of time and labor in making computations, yet in adopting the decimal system of weights and measures, we should be careful to designate the decimals by names which could be readily distinguished and easily pronounced. It appeared to him that a serious evil would arise from using the French nomenclature, which distinguishes the multiples of the unit by prefixes derived from the Greek, and the divisions of the unit by prefixes derived from the

Latin language. In some cases there is a perplexing similarity of names; for instance, a decameter is equal to one hundred decimeters, the only difference between these names is in the fourth letter. Although the pronunciation of these names expresses the distinction between them, it is probable that errors would often arise in writing these words. To obviate this objection, and to make the distinction between the whole series of names more plain, the Chair proposed that prefixes to the unit be used to express the multiplication or increase of the unit by ten, and that suffixes be added to express the division or decrease of the unit by ten. It is best to retain these prefixes as nearly like the French as is consistent with easy pronunciation, but the suffixes derived from the Latin cannot be easily added. After a numerous coinage of names, the following were selected as the best adapted to common use. In measures of length the word meter is contracted to met:—

39·37079 inches—1 meter.
Decamet.—393·7079 inches—10 meters.
Hectomet.—3937·079 inches—100 meters.
Kilomet.—39370·79 inches—1000 meters.
Myramet.—393707·9 inches—10,000 meters.

On the other hand the decrease of the meter is thus expressed:

Metet.—3·937 inches—1 of a meter.
Metun.—3937 of an inch—.01 of a meter.
Metmill.—3937 of an inch—.001 of a meter.

In the same manner the prefixes and suffixes would be added to the unit of weight and, commencing with the highest, the following would embrace the whole series, the gram being equal to 15·44 troy ounces:—

Myrogram—10,000 grams.
Kilogram—1000 grams.
Hectogram—100 grams.
Decagram—10 grams.
Gramet—.1 gram.
Gramun—.01.
Gramill—.001.

In the same manner the additions are made to lit. the contraction of one liter—22009687 of an English gallon—a little less than a quart—myralit., kilolit., hectolit., decalit., liter, lilet., litun, litmill.

The Chair believed it was of the highest importance to settle the question of names before we adopt the system, and to do it in such a way as to save as much time and trouble as possible to those who are to follow us.

SPECIAL NOTICES.

Asahel G. Batchelder, of Lowell, Mass., and Geo. O. Way, of Claremont, Minn., administrators of the estate of Lafayette F. Thompson, deceased, have petitioned for the extension of a patent granted to Henry Tanner, assignee of the said Batchelder and Thompson, on the 6th day of July, 1852, for an improvement in railroad car brakes.

Parties wishing to oppose the above extension must appear and show cause on the 2nd day of July next, at 12 o'clock, M., when the petition will be heard.

Co-operative Molders.

Some molders of Troy, N. Y., have organized a Co-operative Association, and have purchased thirty-six lots in the vicinity of J. B. Carr & Co.'s chain works, upon which they intend to erect a furnace and undertake business for themselves. These lots were purchased for the sum of \$5,800, and are well located and adapted to the purpose indicated. The capital stock is fixed at \$100,000—subscriptions limited to \$5,000. We understand that about \$40,000 have already been taken, and that the projectors feel confident of raising the balance without difficulty. Indeed, so determined are they and so confident of success, that the engine and cupola have been put under contract, and Mr. Hyde's patterns for the improved gas burner purchased by the Association. It is designed to begin work upon the building immediately, and to have the whole ready for operation by the middle of May or the first of June. The result will be watched with interest by the community in general.—Exchange.

An association of American riflemen is to meet at Chicago on June 13th.