

Sulphate of Quinia—Its Use and Abuse.

The New York Medical Gazette contains an excellent article on the use and abuse of quinia, by R. L. Madison, of Petersburg, Va. He speaks justly, we think, against indiscriminately using a medicine without any rational indication for its application.

The cinchona bark, from which the substance quinia is extracted, has derived its name from the Countess of Chinchon, wife of the viceroy of Peru, to whom the medical world is indebted for its first introduction into Europe in 1640.

This practice I consider is pernicious in the extreme; for all experience indubitably proves the sulphate of quinia to be an excitant, not only of the nervous, but also of the vascular system; the cerebral disturbance evinced by a feeling of fullness in the head, ringing, buzzing, or roaring in the ears, and partial deafness, is almost invariably produced by small doses; in larger ones, in addition to the above mentioned phenomena, it has occasioned intense cephalgia, vertigo, deafness, loss of sight, with dilated and immovable pupils, loss of speech, delirium, coma, and great prostration; it has even proved in these large doses the obvious cause of death, by co-operating with the disease in establishing intense inflammatory action in the brain.

This practice, therefore, of using sulphate of quinia in very large doses is much to be deprecated, not only because it is thus diverted from its legitimate sphere of action, but also because, by this wasteful and injurious mode of administration, its price is enhanced to such a degree as to place it beyond the reach of the poorer classes in every community.

the remission of a fever—this quantity having proved in a majority of cases, entirely adequate to arrest periodicity in any form. In some cases eight or ten grains will be quite sufficient. As regards the mode of exhibition, I greatly prefer the solution, not only because it is thus more easily absorbed, and more speedily produces its effects upon the system, but also because you are enabled to give the entire dose two or three hours before the expected paroxysm, and thus obviate the necessity of disturbing the patient's rest."

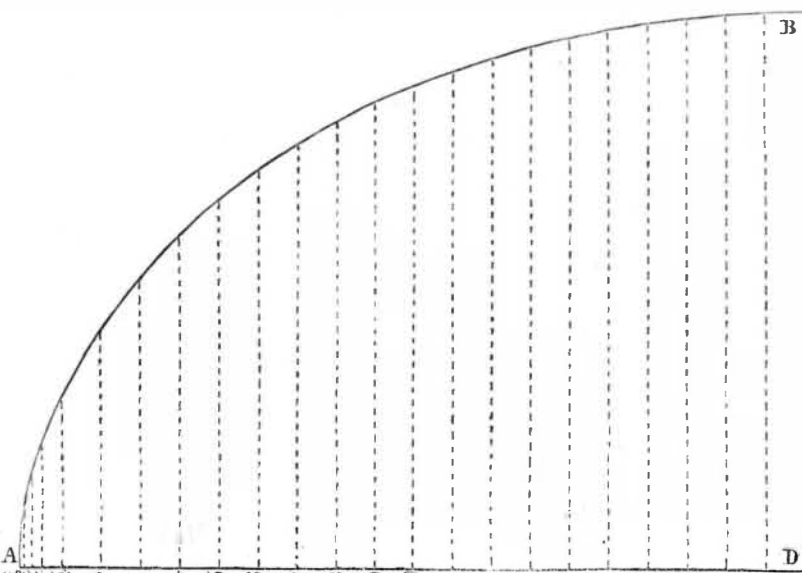
A fact About Winters.

It is a curious fact that, whenever the win-

ter is unusually severe on this side of the Atlantic, the season is uncommonly mild in Europe. The warmest winter we remember was coincident with one in the old world so severe that it has almost passed into a proverb. The present season that has been here so intensely cold, has proved so genial in Paris that apoplexy, caused by the high temperature, has become, as it were, an epidemic. Cannot some scientific friend furnish a solution to this riddle?—[Phila. Bulletin.

[This has not been so this winter in Europe. The weather in Paris may have been mild, but in Britain and parts of the continent of Europe it has been unusually severe.

ORDINATES OF SEMI-ELLIPTIC ARCHES.



Let A D (see fig.) = semi-span = s
Let B D = height = h.
To find the ordinate x at 1-10 the semi-span from A toward D. Then from Conic Sections we shall have
As (s x s) : h^2 :: 1-10 s (s + 9-10 s) : x^2
s^2 : h^2 :: (1-10 s^2 + 9-100 s) : x^2
Or, taking the extremes and means, we have
s^2 x^2 = (1-10 s^2 h^2 + 9-100 s^2 h^2)

Dividing by s^2
then x^2 = (1-10 h^2 + 9-100 h^2) ; adding these we have
x^2 = (10-100 h^2 + 9-100 h^2) = 19-100 h^2
Or, reduced, x = 1-10 h / 19
Taking h=1 then we have x = 1-10 / 19 = .43589, the tabular No at 1-10 semi-span.

It is evident, from the above result, that in any semi-elliptic arch, if one-half the span is divided in the same proportion corresponding with the fractional parts in the Table, the only variable quantity will be the height of the arch.

NOTE—The ordinate at one-fifth the semi-span of any arch, reckoning from A to D, is equal to three-fifths the height of the arch, and the ordinate at two-fifths the semi-span is equal to four-fifths the height.

EXAMPLE OF THE USE OF THE TABLE.—Given the span of an elliptic arch = 36 feet and height B D = 12 feet, to find the ordinates.—Now suppose we want 20 ordinates to half the span A D, here we make use of column 20; then

36-2=18 (feet), the half span.
And 18-20=9, the length of each division.

Now, referring to column 20 and opposite 1, we have the tabular No. .3123, then .3123 x 12 feet the height = 3.7476 the ordinate for the 1st division. Again, to find the ordinate for the second division, opposite 2 we have the tabular No. .4359 x 12, the height gives 5.2308, the ordinate to the second division; we proceed in the same manner with 1, 2, 3, 4, &c., to the 20th division; then, when we have all the ordinates taken out, we may proceed with the construction. The number of each column represents the denominator, and the vertical numbers 1, 2, 3, 4, &c., the numerators of the fractional parts of the semi-span.

The use of the fractional parts at the top of the table is evident from an inspection of the diagram. For instance, the first division from A to 1 (see diagram) is divided into 1-2, 1-4, 1-8, &c.; then we look in column 20, and opposite these fractions we have the tabular No. .2222, .1576, .1116, then each being multiplied by the height, will give the ordinates at 1-2, 1-4, 1-8, &c., of the first division.

If we should investigate the ordinates to semi-circular arches, we should come to the same conclusion as above; and it may be here stated that the same remarks are applicable to the semi-circular as well as the semi-elliptic arch.

Table of the Ordinates of Semi-Elliptical and Semi-Circular Arches when the Height is equal 1.

Table with 6 columns (Column No. 4, 8, 5, 10, 20, 40) and Tabular Numbers. Rows contain numerical values for ordinates.

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Physical Benefit of the Sabbath.

The Sabbath is God's special present to the workingman, and one of its chief objects is to prolong his life, and preserve efficient his working tone. In the vital system it acts like

a compensation-pond; it replenishes the spirits, the elasticity, and vigor, which the last six days have drained away, and supplies the force which is to fill the six days succeeding; and in the economy of existence, it answers the same purpose as, in the economy of income, is answered by a savings' bank. The frugal man who puts away a pound to-day and another pound next month, and who in a quiet way is putting by his stated pound from time to time, when he grows old and frail, gets not only the same pound back again but a good many pounds beside. And the conscientious man, who husbands one day of existence every week—who, instead of allowing the Sabbath to be trampled and torn in the hurry and scramble of life, treasures it devoutly up—the Lord of the Sabbath keeps it for him, and in the length of days the hale old age gives it back with usury. The savings' bank of human existence is the weekly Sabbath.—[North British Review.

Recent Foreign Inventions.

AMORPHOUS PHOSPHOROUS.—The great improvement of rendering phosphorous amorphous, lately discovered by a German chemist, (samples of phosphorous so rendered, were exhibited at the Great Exhibition), has been patented in England, the secret having been sold to a Mr. Arthur Albright, of Birmingham, who, as an introducer, has taken out the patent in his own name. The following is an abbreviation of the specification derived from our cotemporary, the London Mechanics' Magazine.

"This invention consists of an improved method of treating phosphorous, whereby it is rendered amorphous and non-crystalline, and and so far modified in its general character as to be capable of being readily removed from place to place without danger. It is also changed in color, and deprived of much of its poisonous nature and offensive smell and does not ignite under friction or percussion, unless the heat generated thereby exceeds 464° Fah. the point at which amorphous phosphorous is inflammable being 482° Fah.; neither is it so liable as ordinary phosphorous to become converted to phosphoric acid when exposed to the influence of a warm temperature; but when mixed with chlorate of potash, it becomes highly inflammable, and may then be used for the manufacture of lucifers and other similar articles.

These results are produced by the application of heat to ordinary-manufactured phosphorous while access of air is prevented.

The phosphorous to be operated on is placed in a glass or porcelain vessel, inside a closed cast iron pot which has a pipe communicating with a vessel containing quicksilver and water, or water only. The cast iron pot is placed in a sand bath, which again is placed in a metallic bath, to which is applied the heat necessary for conducting the operation. The application of moderate heat causes bubbles to escape from the pipe of the vessel containing the phosphorous, which ignite on coming in contact with the air; as soon as these bubbles have ceased to issue from the pipe, the temperature is raised to about 500° Fah., and maintained at that point until the phosphorous is rendered amorphous. It is then lowered, and the phosphorous allowed to cool, when it is levigated under water, and strained or pressed in filter bags. When dry, it is purified by spreading it in thin dry layers on iron or lead plate, and applying heat, which may be that of steam. In order to remove any ordinary phosphorous which has not been converted to an amorphous condition, and adheres to that which has been operated on, the phosphorous is washed in water, or its removal may be effected by the use of bisulphuret of carbon."

[It is well known that persons engaged in making friction matches are subject to the most dreadful diseases, arising from the use of phosphorous in their manufacture. In Germany and Russia, the poor beings engaged in the making of these matches in the very large manufactories established in those countries, have exhibited a worse than Creten deformity. It is asserted that this discovery removes the evils complained of.

According to the Railway Times, all the railroads now on earth have cost the enormous sum of £447,786,000, or \$2,238,940,000.