

Correspondence.

Conversion of Knots to Miles.

To the Editor of the SCIENTIFIC AMERICAN:

Having experienced difficulty in appreciating distances given in knots, in the many allusions to maritime matters in the newspapers, your correspondent set to work to find a simple rule for converting them into miles. So far as he knows the following method has not appeared before, and it may interest some of your readers.

To the given number of knots add one-tenth and one-half of one-tenth of that number, and the result will be the number of miles very nearly. For example: Let the given number of knots be 20, then $20 + 2 + 1 = 23$ miles. If the exact distance is required, add 8 feet for each mile. Thus the exact distance in the example is 23 miles and 184 feet. WM. W. BLACKFORD.

Lynnhaven, Va., July 14, 1897.

[To convert knots into miles, multiply the knots by 1.1516.—ED.]

Prolific Strawberry Growth.

To the Editor of the SCIENTIFIC AMERICAN:

As you sometimes publish notices of things extraordinary in horticulture line, I send you a photograph of some berries which I raised this spring. They are known as the "Bowker." The cluster contains sixteen matured berries and two that were not; the center berry of this particular group measured seven inches in circumference. I picked one larger than this. It measured eight inches in circumference. It was a common thing to pick berries all through the patch that measured five and a half and six inches. Unlike most large berries, they are solid, sweet and fine flavored, also fewer seeds than most berries. I took great pains in making the bed on which these berries grew. Last July I took one thousand two and a half inch flower pots to my old bed, set them in ground flush with surface and filled them with native earth. I then laid the runners on top, securing them by placing small stones or chips, which ever happened to be the handiest. About the last of August I took a pair of scissors and clipped them from the parent vine. I then took up the pots and carried them to where I wanted to plant them. After first wetting the ground, I dug a hole sufficiently large to place them, then tapped the bottom of the pots. There was a solid ball of roots in every pot. After placing the roots in the ground I packed the earth solidly around them. The plants never showed any evidence of the change. About the first of December I covered all the plants with a good coat of stable manure. I would also state that, before I placed plants in ground, I sprinkled about a tablespoonful of bone meal around each plant.

I have raised a great many berries, but never saw so many grown on one stem before. I send you a photograph of the largest of them. C. F. CURRIE.

The Psychic Influence of the Night Season.

Dr. A. B. Richardson, of the Columbus State hospital, Ohio, contributes an interesting article on this subject to the October number of the American Journal of Insanity, of which the following is the substance, says the New York Medical Journal.

The diurnal alternation of night and day is not without interest in its psychological influence upon the human race. The ebb and flow of energy that it represents is an element of vast importance in our existence. Day is the period of active energizing, night that of repose and recuperation. In the former there is a state of elevation, a natural confidence and a willingness to undertake whatever responsibility may present itself. In the latter there is just as truly a natural depression, a timidity and cowardice in confronting the obstacles in our path.

The accumulated inheritances of countless ages through this ever-recurring elevation and depression have stamped this wavelike characteristic upon every mental operation. The ebb and flow in mind activities is universal. It permeates every form of psychic energy. It gives coloring to our emotional states. It is seldom that in any individual, or at any time, we find an accurate ideal equipoise. We are either in a state of exaltation or of depression, either too confident and self-reliant, with vision too highly colored and enthusiasm too much exalted to be justified by the circumstances of our environment, or we are in the opposite condition of depression and timid cowardice, with little confidence in our powers and an undue extravagance in our estimate of the difficulties in our pathway. Even when this becomes impersonal and is crystallized into the energy of nations, the same tendency is seen. One extreme of opinion almost invariably follows another. The pendulum of thought and psychic energy forever swings first to one extreme of its movement, then to the other. The world is apparently unable to calmly and deliberately maintain a correct status in opinion or practice. It is either too credulous or too suspicious, too indulgent or too intolerant, too confident in its knowledge or too ready

to find cause for criticism and disbelief. How far this oscillation between antipodal points depends upon or is influenced by the diurnal withdrawal and return of the solar influence, says Dr. Richardson, is possessed of more than merely curious interest. It is not unworthy of a few moments' time and study.

Night is the withdrawal of the light and heat of the sun. No amount, and no intensity of artificial illumination will replace this withdrawal. In spite of all the artifice and invention of man, night still reigns supreme. No matter how much we may attempt it, we cannot turn night into day. Although we may supply light and noise and the stir and bustle of day, it is still night. The tendency toward repose and a letting down of the armored guard that the activity of day brings with it are still there.

There is an element of timidity and fear in our organization that is greatly enhanced at night, and this may largely account for our increased credulity at that time. Our belief is born of our fears. How many physicians are there, he asks, who cannot bring proof of this? Many of their night calls are due to the greater uneasiness of the patient or his parents or friends on the approach of night. They are affrighted then at symptoms that would not alarm them during the day, and hasten to send for the physician to relieve them of the fears that night itself has seemed to bring to them. Again, in many cases of illness there is an actual exacerbation in the symptoms with the approach of night. This is notably so in children. This may have a double origin. It may be due to the increased timidity of the individual at that time, and a consequent increase in the subjective sensations of the disease, and it may be due, at least in part, to the natural letting down of the power of resistance of the organism that we believe does occur during the night. Whatever may be the explanation, says Dr. Richardson, the fact is indisputable, and there is not a mother who does not dread the approach of night when her child is seized with a dangerous illness.

A still more interesting fact is the influence of the night season over moral attributes. There is a letting down in this direction which is very similar to that seen in the field of the emotions. The power of resistance to things evil is then diminished. The very mystery of night is conducive to an expanding of the imagination. There is a sharpening of all the senses that renders every sound clearer and makes every object stand out in greatly heightened distinctness. The sense of hearing is more acute, the eyesight detects objects more readily, the touch is quickened, and the whole being is more sensitive. Whether this is evidence of weakness, says the author, the hyperesthesia of nervous exhaustion, or a quickening of every tissue in its instinctive strife for self-preservation, may be beyond us; of the fact we all have proof in the promptings of our own hearts.

The most dangerous hours of the twenty-four, he continues, to the melancholic are the latter hours of the night. The depression is then greatest, obstacles then seem most insurmountable, and the power of resistance to the suicidal impulse is then least effective. He has often found it necessary to give special instructions to attendants in this regard. This all goes to demonstrate, he says, that the energy of the patient is at its lowest ebb during the night; that there is then a natural depression and timidity.

What is experienced by the sane, influences also the insane, and obstacles and misfortunes then mount highest in their vision. There is doubtless scarcely a melancholic who does not at one time or another have suggestions of self-destruction, and whether or not they will control him depends entirely on the strength of the suggestion. The particular hour of the night is often sufficient to throw the balance against the poor unfortunate, and in this sense it becomes an actual exciting cause of suicide.

It is a fact that we should not lose sight of, and the author is convinced that it has its basis in a physiological variation of the organism at this hour. Just as certainly, says Dr. Richardson, as there is a physiological condition of exaltation and sense of well-being, so also is there a physiological state of depression and irritation with our environment. It is not necessary to assume that this implies disease. It does not. It is simply an inevitable reaction, such as is seen in all physiological phenomena. There is a coming and a going, a rise and fall, a season of joy and a sense of pain, and he is persuaded that the greatest factor that instituted and enforces this law of Nature is the daily cycle of the earth on its axis, with its necessary presentation and withdrawal of organic life to that source of all life and energy, the solar center. In its presence we imbibe warmth, energy, confidence, life; in its absence we suffer the reaction of coldness, lowered ambition, lack of confidence, and moral cowardice—a curious physiological fact and one not without its practical application.

AMONG the portraits recently acquired by the trustees of the National Portrait Gallery, London, is that of Sir Francis Ronalds (1788-1873), the inventor of the first working electric telegraph.

Science Notes.

An annual meeting of the American Microscopical Society will be held at Toledo, Ohio, on August 5-7, under the presidency of Prof. E. W. Claypole.

The specifications of the new wing of the American Museum of Natural History, New York City, have been approved by the Park Board, and bids for the building will soon be opened.

Harvard University has conferred the degree of A.M. on Prof. Franklin W. Hooper, of the Brooklyn Institute of Arts and Sciences. Prof. Hooper's great work in the city of Brooklyn is certainly worthy of some recognition.

The London Chronicle calls attention to the death rate in many of the model dwellings in that city. In particular there is found in the houses of the Metropolitan Association for Improving Dwellings of the Working Classes a death rate of only 9/64 to 1,000. The inmates of these houses number 6,430, and are housed in fourteen blocks in different parts of the city. This rate is only half the rate for the whole of London.

A note in Cosmos states that Kotz measured the amount of fatigue produced on the eye by different kinds of artificial light, by counting the number of winking of the eyelids in ten minutes. For the candle he obtained 6.8 per minute; for ordinary gas, 2.08; for sunlight, 2.2; and for the electric light, 1.8. All lighting causing more than three per minute ought to be rejected. (It is not stated what the eye was looking at when the measurements were made; it certainly could not have been the source itself.)

The Albert medal for the present year has been awarded, with the approval of H. R. H. the Prince of Wales, President of the Society of Arts, to Mr. G. J. Symons, F.R.S., for the services he has rendered to the United Kingdom by affording the engineers engaged in the water supply and the sewage of towns a trustworthy basis for their work by establishing and carrying on, during nearly forty years, systematic observation (now at over three thousand stations) of the rainfall of the British Isles, and of recording and tabulating and graphically indicating the results of these observations in an annual volume published by himself.

Since the application of photography to stellar charting, the discovery of planetoids between Mars and Jupiter has gone on apace, upward of four hundred and forty of these bodies having been recognized as such. Of these, M. Charlois is to be credited with the discovery of no less than eighty-eight, five of them during the year 1896, during which nineteen additions altogether have been made to the already overgrown list. With telescopes of the enormous aperture now constructed, and with sufficiently prolonged exposure, there seems no particular reason why this number should not ultimately increase very materially.

Indians and animals typical of America are to be perpetuated in bronze for the National Zoological Garden at Washington, if the plans of certain men of public affairs at the national capital are carried out. And Edward Kemeys, the Chicago sculptor, is the artist who is to execute the statues of the fast disappearing red man and the fauna of America. Congress will be asked for an appropriation for the purpose, and it is expected that that body will respond as generously for the purpose as it has heretofore in the beautifying of the great national park. Capt. Kemeys has returned to his Bryn Mawr residence after a six weeks visit to Washington and is at work on the project.

An interesting discovery from a geological point of view, says Le Génie Civil, was recently made by an explorer in the mountains of Witzies Hoek, Natal. On the summit of an extinct volcano, on the edge of a lake that occupies the crater, soundings revealed a layer of sand inclosing small diamonds. It would be interesting to know whether these diamonds were there accidentally, that is, as the result of washing operations carried on by the natives, or whether this discovery corresponds to an actual mine of diamonds, for the hills of Witzies Hoek are not situated in regions known to be diamond bearing. On this last hypothesis, the presence of precious stones in the crater of a volcano would doubtless throw some light on the formation of the gems in nature.

M. H. Leman says, in a German technical paper discussing standards of length, that the straight line mark on a scale is in reality a trough with inclined sides, the surface of the trough being more or less rough and uneven. In order to define more minutely the distances on a scale, the author adopted the following arrangement: A fine platinum wire, 0.04 millimeter in diameter, had an electro deposit of copper until the outside diameter was 1 millimeter. Short pieces of this compound wire were driven into holes in the bronze body of the scale, and the whole surface carefully polished. In this way the white circular marks were clearly defined from the body of the scale, the centers of these circles could be very accurately determined by the two parallel wires of the microscope, the distance between the wires being slightly less than the diameter of the platinum wire.