Correspondence.

Speed of Thought in Dreams.—De Quincey Excelled.

To the Editor of the Scientific American:

In your issue of May 24 is an article on "Speed of Thought," showing the rapidity of thought as shown by an engineer dreaming a long dream while traveling 250 feet in 4 seconds. A case happened here wherein the dreamer had an equally long dream in less than one second. A telegraph operator was one night during the Turco-Russian war receiving a press dispatch regarding the war, in which the name of Gortschakoff was being telegraphed. Gortschakoff's name appearing so often in such dispatches, the operator, as soon as he heard the first syllable of the great premier's name, went to sleep and dreamt he went to his mother's home in the Indian Territory; went hunting with some Indian friends; had a great deal of sport, and went through an experience which would take days to perform, and finally after returning from the hunt during the division of their game, he woke up in time to hear the final syllable of Gortschakoff's name, and succeeded in making a complete "copy" of the message. At the rate of 40 words per minute, at which telegraphing is usually done, you will see that the time of the dream, which commenced when the middle syllable of Gortschakoff's name was being made, was one-third of one and one-third of a second, or forty-four one-hundredths of a second. Yours, etc., R.

Sedalia, Mo., May 25, 1884.

The Oxygen in Water.

Dr. William Odling, F.R.S., recently lectured at the Royal Institution on "The Oxygen in Water." Sir Frederick Bramwell, F.R.S., presided.

Dr. Odling began by stating that in 1823 Faraday proved that a gas or vapor is nothing but a liquid at a temperature above its boiling point; and the lecturer exhibited a number of glass tubes containing liquefied gases, which had been prepared by Faraday, who liquefied nearly every known gas. It is only within the last six years that the five or six gases which had previously resisted liquefaction have been reduced to that state by perfected modern appliances for producing cold and pressure. At the present time a chemist in Paris is making liquid oxygen by the pound.

The speaker said that when gases are dissolved in water they somehow assume the liquid state therein, and increase the bulk of the water. At 0 deg. C. 100 volumes of water dissolve 4·11 volumes of oxygen gas; at 15 deg. C. they dissolve 2·99 volumes. At 0 deg. C. 100 volumes of water dissolve 6,886·10 volumes of sulphurous acid gas, and at 15 deg. C. 4,356·50 volumes. 100 volumes of water at 0 deg. C. dissolve 114,800·00 volumes of ammonia, and at 15 deg. C. 78,270·00 volumes. Water at a temperature of 45 deg. Fah. dissolves 2·199 cubic inches of oxygen per gallon, and at 70 deg. Fah. 1 797 cubic inches per gallon. The barometric pressure has a feeble influence in causing variation in the amount of oxygen absorbed by water, the variation not exceeding a small fraction of a grain per gallon; yet in a large river that means a variation in the quantity of oxygen to be measured by tons.

River water in summer contains about four grains of oxygen per cubic foot, and about five grains in winter. Every ten million cubic feet of water passing over Teddington Weir carry with them 17¼ tons of liquefied oxygen, or about 50 tons of liquefied air, when the water is at the temperature of 60 deg. Fah.

In August, 1859, Dr. W. Allen Miller ascertained the proportion of oxygen in the Thames at low water, and found that as the Thames runs through London, the quantity of oxygen in it diminishes as compared with the proportion it contains at Richmond; and discovered that about 12 or 13 tons of oxygen are lost between Richmond Bridge and Somerset House. Other chemists have since taken up the work, and their results agree tolerably closely. One method of testing the proportion of oxygen in water is by means of hyposulphite of soda—a salt in an inferior state of oxidation to the sulphite; the hyposulphite used is not that employed by photographers, which is, properly speaking, the thiosulphate of soda. The hyposulphite of soda used in the analysis of water bleaches the ammoniacal solution of oxide of copper; it also deoxidizes indigo, magenta, and iodide of starch. White indigo is made blue by the air in water, but does not do so if hyposulphite of soda is put in the water first to absorb the oxygen. When water is made blue by indigo, and hyposulphite of soda is added, the latter has the choice of two substances from which to absorb oxygen, and it deoxidizes the air in water first; hence the quantity of hyposulphite used before the liquid is bleached affords a method of measuring the proportion of oxygen in water. When the liquid is just bleached, by adding no more hyposulphite of soda than is necessary for the purpose, it can be made blue by pushing down air into it, or by pouring it from one vessel to another.

Tests of the Thames water show that at Erith, near the sewage outfall, it contains but about half a cubic inch of oxygen per gallon instead of 2 cubic inches per gallon; but lower down the proportion of oxygen rises again, until the water is within 10 per cent of its richness in oxygen at Richmond. Thus the considerable power which flowing water possesses of keeping itself sweet and clean is no longer a matter of speculation, but one of positive proof. Still the power, great as it is, may be overtaxed, and often is overtaxed in some cases, when the organic matter is non-living. As to whether it has the power of destroying those minute living organisms which are the germs of certain diseases, there are at present very great differences of opinion among chemists.

Pompeii.

POMPEII, February 10, 1884.—In two recently excavated houses the paintings on the walls are as fresh as if just put on, and the halls are rich with decorations. Some of the marble tables are still standing; the fountains in the atrium and peristyle, with their pretty little statues and mosaics, look as if they might begin to play at any moment; the kitchen hearths, built like ranges, seem ready for their pots and kettles; a few flower pots are still set in the gardens· in the storerooms are some oil jars and wine jars; it is as if one might begin housekeeping to-morrow, and invite one's friends to dinner the day after.

One thing is difficult to conceive without seeing it, and that is the gorgeousness of the interiors of the private houses. The colors are now faded; the columns are broken; the mosaics of the floors are generally nearly destroyed; the fountains do not play; the flower beds are destitute of flowers; yet, even as it is, one is continually amazed by the brilliant effect of the interior vistas. In one house the view from a triclinum across two courts, both surrounded by gayly decorated Corinthian columns standing before walls painted from top to bottom in a variety of colors, is really dazing to the eyes. The old Pompeians lived in a rainbow atmosphere.

Another striking thing is the absolute cleanliness. You may say that the dirt has all been taken away by the Italian Government. That is true, but it is quite evident that in the old times it never was there. Our modern houses are not made to be clean, as were the Pompeian residences. The walls, the floors, every corner of their homes, were finished with the most admirable workmanship. In their rooms no plaster ever fell, for it was of such excellent material, and so well put on, that it soon became like marble. They had no wooden walls, no cracks where dust could penetrate. Water for cleansing was found in every part of the house, and ran off through perfect drains. All the tables and bedsteads were of marble or bronze; even the well-curbs and the borders of the flower beds were of hewn stone. Hygiene must have come naturally to the old Pompeian; he evidently had no chance to get a typhoidal attack; the only class of diseases he could not provide against were the eruptive, and one of these carried him off at last. . . .

The excavations are going on steadily, and are admirably managed. It is a delight to see one room after another revealed to the light of day. The authorities are now beginning to replace the charred timbers of the roofs with new ones. In this way some second story balconies are kept in place, instead of being allowed to fall down as formerly. Over some of the most richly decorated houses the roofs are restored exactly as they were, with tiles made after the ancient patterns. . . .

You would be astonished at the size of some of the Pompeian houses, and of the rooms and spaces they inclose. They look small because they are so empty, but when you measure them you find them very spacious. Houses of thirty and forty rooms in the first story are not uncommon. The great space was the atrium, often 35 to 40 feet long, having an opening for light in the center of the roof, and just under this a marble lined basin, raised above the floor, into which the rain fell, and on the margin of which were placed bronzes and vases. Out of this opened bedrooms, and at the end a reception room and dining room. Beyond these was a peristyle, or court, surrounded by from eight to twenty columns, thus making a broad corridor running all around. Some of the peristyles were 80 or 100 feet square, with a great variety of rooms opening into them. Beyond the peristyle was the garden, sometimes 150 feet square, or more, with all sorts of arrangements for plants and fountains. A good many of the elaborate niche-shaped fountains are still perfect. The street entrances to some of the houses are 10 to 15 feet in width, and had quadruple or four-leaved doors. In fact, so spacious are these dwellings on the ground floor that it is generally believed that the upper story rooms were rented out. . . .

The floors of the first and second stories were of cement in which patterns of mosaic or tessellated work were laid. Many of these floors are uninjured. . . . The houses were admirably planned to save space; and the decorations, mural and otherwise, were far beyond our conceptions of the art of ornamentation. The workmanship, especially the plaster and stucco, was much better than can be produced by our modern craftsmen.

In examining Pompeii it is necessary to remember that it was a small provincial city, bearing about the same relation to Rome that Auburn or Utica does to New York. This increases our wonder in walking through its well paved streets, or its richly adorned houses, or about its theaters and temples and squares, or in studying the thousands and thousands of art objects in terra cotta, bronze, silver, gold, alabaster, marble, and glass, which have been discovered within its walls—even with less than half the city excavated.—*American Architect.*

IN England the mails are used for the transmission of nearly every species of merchandise. Fish, game, meat, butter, eggs, fruit, cream, and all other farm products are transmitted through the English parcels post at very cheap rates. In a word, the British Post Office really does the express business of the country.

Suicide and Sleeplessness.

The circumstances attending the recent death of the Dean of Bangor—albeit they are infinitely distressing—present no novel features. The reverend gentleman, according to the *Lancet*, was a man of considerable intellectual "power," which is the same thing as saying that he was constitutionally liable to intervals of mental depression. All highly intellectual men are exposed to this evil. A pendulum will always swing just as far in one direction as it does in the other. Great power of mind implies also great weakness under certain conditions. The marvel is not that great minds occasionally become deranged, but that they so often escape derangement. Sleeplessness means not merely unrest, but starvation of the cerebrum. The brain cannot recuperate, or, in other words, it cannot rest. Physiologically, recuperation and rest are the same thing. Sleep is simply physiological rest. The only cause for regret in these cases is that the blunder should ever be committed of supposing that a stupefying drug which throws the brain into a condition that mimics and burlesques sleep can do good. It is deceptive to give narcotics in a case of this type. The stupor simply masks the danger. Better far let the insomnious patient exhaust himself than stupefy him. Chloral, bromide, and the rest of the poisons that produce a semblance of sleep are so many snares in such cases.

Sleeplessness is a malady of the most formidable character, but it is not to be treated by intoxicating the organ upon which the stress of the trouble falls. Suicide, which occurs at the very outset of derangement and is apt to appear a sane act, is the logical issue of failure of nutrition that results from want of sleep. It is curious to note how a sleepless patient will set to work with all the calmness and forethought of intelligent sanity to compass his death. He is not insane in any technical sense. He has no delusion. He does not act, or suppose himself to act, under an "influence." He simply wants to die, and, perhaps, not until after he has made an attempt to kill himself will he exhibit any of the formulated symptoms of mental disease.

A Frolicsome Arabian Stallion.

A suit was tried in one of our city courts the other day against Ulysses S. Grant, Jr., for injury done to the plaintiff (a Mr. Bailey) by a vicious horse. Some years ago Gen. Grant had presented to him a pair of Arabian stallions, which were being kept at his son's farm in Westchester County. One day one of the stallions was ridden to a store in the village, and hitched to a post. At this time Mr. Bailey was coming down the road in a two horse wagon loaded with eleven cans of milk.

Mr. Bailey, on the witness stand, told substantially the following story of what next happened: The young man who rode the horse had scarcely entered the store when the stallion threw up his head, pulled off the headstall, and started up the road. He came in contact with the complainant's horses, kicked and bit them, and crowded them into a ditch. The stallion then put his fore feet into the wagon, upset the milk cans, and then he leaped into the wagon like a dog and sat down in the complainant's lap. Then he kicked Mr. Bailey over backward, pawed him out of the wagon, jumped out, kicked over the wagon, tore the harness, and caused the witness' horses to run away. The horse then pawed the complainant in the face, broke a rib on the left side, injured his spine, badly bruising his shoulder, and left him unconscious upon the frozen ground. Mr. Bailey was assisted home, and has since been an invalid.

The defense was that U. S. Grant, Jr., did not own the horse; that he offered to settle all damages to wagon, horses, milk, and harness, and to pay Bailey's doctor bill, and that the offer was declined. The jury gave Bailey a verdict for $5,000.

THE attendance at some of the leading colleges for the current year is as follows: Michigan University stands at the head with 1,554 students; Harvard, 1,522; Columbia, 1,520, University of Pennsylvania, 1,044; Massachusetts Institute of Technology, 561; Princeton, 527. As regards the number of professors in each, however, the order will be somewhat changed. University of Michigan is omitted, owing to lack of data. Harvard has 32 professors, and a total of 55 instructors. Princeton comes next with 28 professors, and a total of 34, including tutors, etc. Yale, 20 professors, and total of 30 instructors. Columbia, 12, and total of 29.

Of these four last named, Harvard was founded in 1636; Yale, 1701; Princeton, 1746; Columbia (King's), 1754. Together with these statistics of number of students and professors, it would be interesting to note the sizes of libraries in the last named institutions. Harvard once more heads the list with a total of 277,700 volumes. Yale, total, 161,000 volumes. Princeton, 122,000 volumes. Columbia, 47,000 volumes. Harvard at present has 8 Fellows; Princeton, 8; Yale, 3; and Columbia, 2.

Blood Cake for Cattle.

The use of blood as a food for cattle has, it is stated, been the subject of experiment in Denmark by a chemist, who, as a result, has now invented and patented a new kind of cake, in which blood forms one of the chief ingredients. This new food is stated to be exceedingly nutritious and wholesome, and is eaten with avidity by all sorts of animals, and even by cows and horses, which have naturally a strong dislike to the smell of blood.