

and thus to add to the number and brilliancy of our thoughts. A glass of wine by its action upon the heart, causes it to beat with more force and frequency, and appears especially to act upon the cerebral circulation. Eugene Sue never wrote without a bottle of champagne by his side, from which he imbibed a great part of his genius. Others take opium for the same purpose; and others again resort to still more dangerous means. One of the most effectual and safest is a cup of strong coffee. Sydney Smith said, "If you want to improve your understanding, drink coffee;" and Sir James Mackintosh used to declare that he believed the difference between one man and another was produced by the quantity of coffee they drank.

Then, again, the quantity of blood in the brain is increased by those portions of the body which mechanically favor its entrance into the cranium, or retard its exit. Many persons have noticed the influence of position on the activity of thought. Pope used to lie awake at night thinking, and, when a particularly brilliant thought occurred, would ring for pens, ink, and paper, in order that he might record it ere it was lost. The engineer Brindley used to retire to bed for a day or two, when he was reflecting on a grand or scientific project. Sir Walter Scott has said that the half hour passed in bed, after waking in the morning, was the part of the day during which he conceived his best thoughts. Tissot states that a gentleman, remarkable for his accuracy in calculation, for a wager, lay down in a bed and wrought by mere strength of memory a question in geometrical progression, while another person in another apartment performed the same operation with pen and ink. When both had finished, the one who had worked it mentally repeated his product, which amounted to sixteen figures, and, insisting that the other gentleman was wrong, desired him to read over his different products. On this being done, he pointed out the place where the first mistake lay, and which had run through the whole. He paid very dearly, however, for gaining his wager, as for a considerable time he had swimming in his head, pains in his eyes, and severe headaches upon attempting any mathematical labor. A gentleman has recently told the author that, whenever he is at a loss for ideas in his literary compositions, he lies down on a lounge, and always with good results.

But the blood in the brain may be increased by its own action. Intense and long-continued thought, anxiety, grief, and other emotions, have this effect. It may be laid down as a law admitting of no exception, that, when an organ is kept in a condition of great activity, there is an augmented flow of blood to its substance; and the organ, whatever it is, increases somewhat in size when an increase is possible. Take, for example, the arm of a blacksmith, the leg of a ballet-dancer. Here the excessive use to which the muscles are put causes an increased flow of blood to the part, and the consequent formation of new matter in greater proportion than it is consumed.

There can be no muscular action, except as the consequence of the disintegration of a certain amount of muscular tissue. No gland can act without its substance becoming decomposed to some extent, and no thought can be conceived by the brain without the destruction of a definite amount of the cerebral matter.

During wakefulness, the brain is constantly in action. There is not a moment during which it is entirely quiescent. If our thoughts are active, or if strong emotions act upon us, the blood flows in increased amount to the head, in order that new matter may be deposited to take the place of that which has been used. For all new substance, whether of the heart or the lungs, or the brain, or the nerves, comes from the blood.

In the ordinary course of our lives the supply is equal to the demand. But it is possible so to use our brains that the substance is destroyed in a greater proportion than the blood can supply. Men engaged in the feverish and anxious occupations of life rarely stop to think that they are using their brain capital, instead of merely consuming the interest, as they ought to do. The end for all such is not far distant. It is as certain as the result of spending a pecuniary capital instead of living upon the income. The one will inevitably lead to insanity or a lunatic asylum; the other to pauperism and the almshouse.

Now, what has all this to do with the question, Why do we sleep? Simply this: sleep is the rest of the body, and especially of the brain. During this condition, the brain is at its minimum of activity. Certain faculties, such as the imagination, appear to be in full operation, but it is in appearance only, for those faculties which regulate it when we are awake have their action suspended. All other organs have their periods of rest during wakefulness, except the brain. Sleep is essentially the condition in which the noblest organ of the body reposes from its labors. It is then that the blood deposits new cerebral matter faster than it is used, and thus prepares the brain for its new duties when we awake.

If we take the hours which should be devoted to sleep and use them in mental activity, we are robbing our brains of the opportunity for regeneration which the condition of sleep affords. We are surely

consuming our capital, brain—and intellectual bankruptcy is the certain result. If we persevere, the time is reached when we cannot sleep. For the cerebral vessels become so permanently distended that sleep is an impossibility.

It used to be thought that during sleep there was an increase in the quantity of blood circulating through the brain, but very exact observations have satisfied us that the reverse is the case. Wakefulness, therefore, keeps the cerebral vessels distended, a state of congestion is thus induced, the blood is not rich enough in the substances the brain requires to supply its wants, and this organ accordingly consumes its tissue for the restoration of mind, without the possibility of sufficient deposits being made to compensate for the loss.

Is it a matter for surprise that, under such circumstances, the brain should act badly, and that the manifestations of mental action should exhibit irregularity and disorder? Is it a wonder that a man who has passed a sleepless night should be unable to transact his business properly the next day, or even to add up a column of figures correctly? Is it strange that his head should feel dull and heavy, that he cannot collect his thoughts, or even concentrate his attention upon matters requiring deliberation? Let this go on night after night, and organic diseases of the brain, such as insanity, inflammation, or softening, are certain to result. We sleep, therefore, mainly to give the brain rest. One-third of our lives should be devoted to this purpose. If this is done, it matters not how constantly or intensely we employ the organ which, in its noblest proportions and in its fullest vigor, makes man what he is.—*Appleton's Journal*.

### Reading and Writing.

A British author of considerable fame has furnished his readers with the following advice upon the kindred subjects of reading and writing:

"Reading without purpose is sauntering, not exercise. More is got from one book on which the thought settles for a definite end in knowledge, than from libraries skimmed over by a wandering eye. A cottage flower gives honey to the bee, a king's garden none to the butterfly.

Youths who are destined for active careers, or ambitious of distinction in such forms of literature as require freshness of invention or originality of thought, should avoid the habit of intense study for many hours at a stretch. There is a point in all tension of the intellect beyond which effort is only waste of strength. Fresh ideas do not readily spring up within a weary brain; and whatever exhausts the mind not only enfeebles its power, but narrows its scope. We often see men who have over-read at college entering upon life as languidly as if they were to leave it. They have not the vigor to cope with their own generation; for their own generation is young, and they have wasted their nervous energy which supplies the sinews of war to youth in its contests for fame or fortune.

Study with regularity, at settled hours. Those in the forenoon are the best, if they can be secured. The man who has acquired the habit of study, though for only one hour every day in the year, and keeps to the one thing studied till it is mastered, will be startled to see the way he has made at the end of a twelve month.

He is seldom overworked who can contrive to be in advance of his work. If you have three weeks before you to learn something which a man of average quickness could learn in a week, learn it in the first week and not the third. Business despatched is business well done, but business hurried is business ill done.

In learning what others have thought, it is well to keep in practice the power to think for one's self; when an author has added to your knowledge, pause and consider if you can add nothing to his.

Be not contented to have learned a problem by heart; try and deduce from it a corollary not in the book.

Spare no pains in collecting details before you generalize; but it is only when details are generalized that a truth is grasped. The tendency to generalize is universal with all men who achieve great success, whether in art, literature, or action. The habit of generalizing, though at first gained with care and caution, secures by practice, a comprehensiveness of judgement and a promptitude of decision which seem to the crowd like the intuition of genius. And, indeed, nothing more distinguishes the man of genius from the mere man of talent than the facility of generalizing the various details, each of which demands the aptitude of a special talent, but all of which can be only gathered into a single whole by the grasp of a mind which may have no special aptitude for any.

Invention implies the power of generalization, for an invention is but the combining of many details known before into a new whole, and for new results.

Upon any given point, contradictory evidence seldom puzzles the