gested that possibly, after all, sleep might be connected with an opposite cerebral cause to that commonly held. In a few years this was placed beyond doubt, and a number of subsequent experiments proved that during ordinary sleep the brain is practically in a bloodless condition.

This discovery was at once found to coincide with everything known concerning the causes of sleep and the conditions which tend to produce it. For example, great loss of blood predisposes to sleep; heat has the same effect because it draws the blood to the surface and lessens the supply to the brain; a hearty meal will also have the same effect, for the simple reason that a greater quantity of blood is drawn to the gastric region to assist the work of digestion. Extreme cold has an opposite effect. It drives the blood from the surface tc the internal organs, including the brain, in which it accumulates, and the consequence is a state of coma. Monotonous sounds are conducive to slumber because they weary the brain and thus diminish its activity, rendering a less supply of vital fluid necessary. On the other hand, mental excitement of any kind banishes sleep, because activity of the brain requires a supply of blood to that organ inconsistent with the physical conditions of sleep. The discovery of the comparatively bloodless condition of the brain during sleep brought out also a perfect harmony in the law of nutrition of the different parts of the system. Every one of the bodily organs exercises its functions at a considerable expenditure of its own substance. Its period of activity is for itself one of constant wear and tear. During its activity the blood goes to help it to perform its special work. When it has done its work the supply is drained away to another organ whose periodic activity is commencing. Then begins its season of rest, and it is during this time that the organ itself is nourished. So that to deprive any organ of rest is also to deprive it of nourishment.

But, though the discovery of the anæmic condition of the brain during sleep satisfactorily explained some things which were before inexplicable, the cause of the bloodlessness was itself a problem. Dr. Fleming's experiment showed that sleep is at once produced by partly stopping the supply of blood to the brain; it would therefore appear that some special mechanism is required to secure at the proper moment the lessening of the streams flowing to the organ. This can only be accomplished by a natural contraction of the vessels which supply the brain. The walls of the blood-vessels consist of several coats, one of which is of muscular fibres encircling the whole artery or vein. When these contract they necessarily narrow the channel, and they are connected with nerves which regulate their contraction and belonging to the sympathetic system. The brain itself has no control over the supply of fluid which reaches it. The key of the position is, so to speak, in the ganglia of the neck—a chain of small knots of nerve matter lying in front of the spinal column. They have only to exert their force on the muscular walls of the arteries when the contraction of the latter renders the brain powerless. But, although the ganglia have such a power, it can only be used under certain conditions. The accepted theory is that, while the primary force of the ganglia tends always to contract the arteries, their power is held in abeyance all the time that the brain is in a state of activity. But when the brain becomes fatigued, the opposing force is first diminished and then ceases, and the ganglia, set free from all control, put forth their native power, with the almost immediate result that the supply of blood to the brain is so lessened that sleep overtakes the subject. But there is sometimes something of a battle before perfect sleep supervenes. The brain resumes, by snatches, a temporary sway over the ganglia, until it is no longer able to continue the conflict.

During sleep the brain throws off the matter which had given rise to the feeling of weariness, and assimilates new material for the repair of its own substance. In this way it is invigorated and put in a position to reassert its power over the ganglia. Dreaming is a state of imperfect sleep, in which some of the faculties, notably the memory and the imagination, are in active operation, while others lie dormant. Lying on the back with a pillow under the shoulders instead of under the head will sometimes give rise to a "nightmare" not easily forgotten. Sleeping with the mouth open, too, will produce the same result, because the air we breathe should be warmed and purified by a special apparatus with which Nature has provided us, and which is not used when inspiration is performed through the mouth.

Properly approached, Morpheus is not a difficult god to woo, and as to how long we ought to remain under his spell, that is another story, as Rudyard Kipling says.

Nurses have exceptional opportunities "through the long night watches" of observing the phenomenon of sleep. They are also skilled in the small devices which bring rest to the restless.

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