

THE MYSTERY OF SLEEP.

Sciences Attempts to Learn Its Meaning and Art of Its Control.

"BLESSED be the man," said Sancho Panza, "who first invented sleep. It covereth a man like a cloak!" but the phrase says more for the governor of Barataria's gratitude than for his powers of observation. A cloak does not descend upon us at inconvenient times of its own accord, nor does it leave us suddenly when we most desire its presence. Neither does it return to us periodically with such persistence that, it has been calculated, we spend one-third of our whole lives in sleep. If we look for further holes in the analogy, we might find them in the fact that sleep seems to be the peculiar appanage of the beginning and end of life, so that both children and old people sleep considerably more than the middle aged. Yet little is really known about sleep, and Mme. de Manacéine, the talented Russian lady who has collected many curious facts on the subject, has to confess that it has hitherto engaged the attention of physiologists to a less extent than almost any other vital phenomenon.

OUTWARD SIGNS OF SLEEP.

Let us watch now the house dog—the cat, besides being an unempathetic subject for scientific experiment, is so used to "playing possum" that it is not easy to say whether he is asleep or awake—preparing himself for a nap in front of the fire. Sometimes he yawns, sometimes he stretches himself, both of which actions have a physiological meaning; then he turns round three times in the same spot, which is said to be a reminiscence of the time when it was necessary to brush away the long grass, and to search the "yard" thus made for snakes and scorpions. But always, when he has finished these preliminaries, he throws himself down on his side with outstretched head, legs and tail. The "yard" thus made for snakes and scorpions. But always, when he has finished these preliminaries, he throws himself down on his side with outstretched head, legs and tail. The "yard" thus made for snakes and scorpions. But always, when he has finished these preliminaries, he throws himself down on his side with outstretched head, legs and tail.

EFFECT OF TICKLING SOLES.

Soon, however, this stage passes. As his sleep becomes sounder—a state that may sometimes be induced by tickling or stroking the soles of his feet—his

strongly, and will take two or three minutes before he resumes his usual alertness.

INTERNAL CHANGES DURING SLEEP.

What now has taken place, as we may say, inside the dog, to bring about these changes of appearance and function. Thanks to the observation of cases where either by the operation known as trephining, or by gunshot wounds, some portion of the skull has been removed, we know that during sleep the brain becomes pallid, and almost discharged of blood. Also the beating of the heart gets slower and slighter, and the respiration, or what is the same thing, the rate of exchange of the inbreathed oxygen for the expelled carbonic acid, decreases, so that the percentage of the latter falls from 15 to 12.

Yet this in itself does not account for all the phenomena. The blood departing from the brain only goes to give increased activity to vital processes elsewhere. The skin becomes more active—whence our increased liability to get chilled during sleep—the digestion goes on with greater rapidity, and although heart and lungs, as we have seen, do not work at the same pace as in our waking moments, it would be a bad thing for the sleeper if either organ stopped for one second in its regular and ordered toil.

HIGHER FUNCTIONS AWAKE.

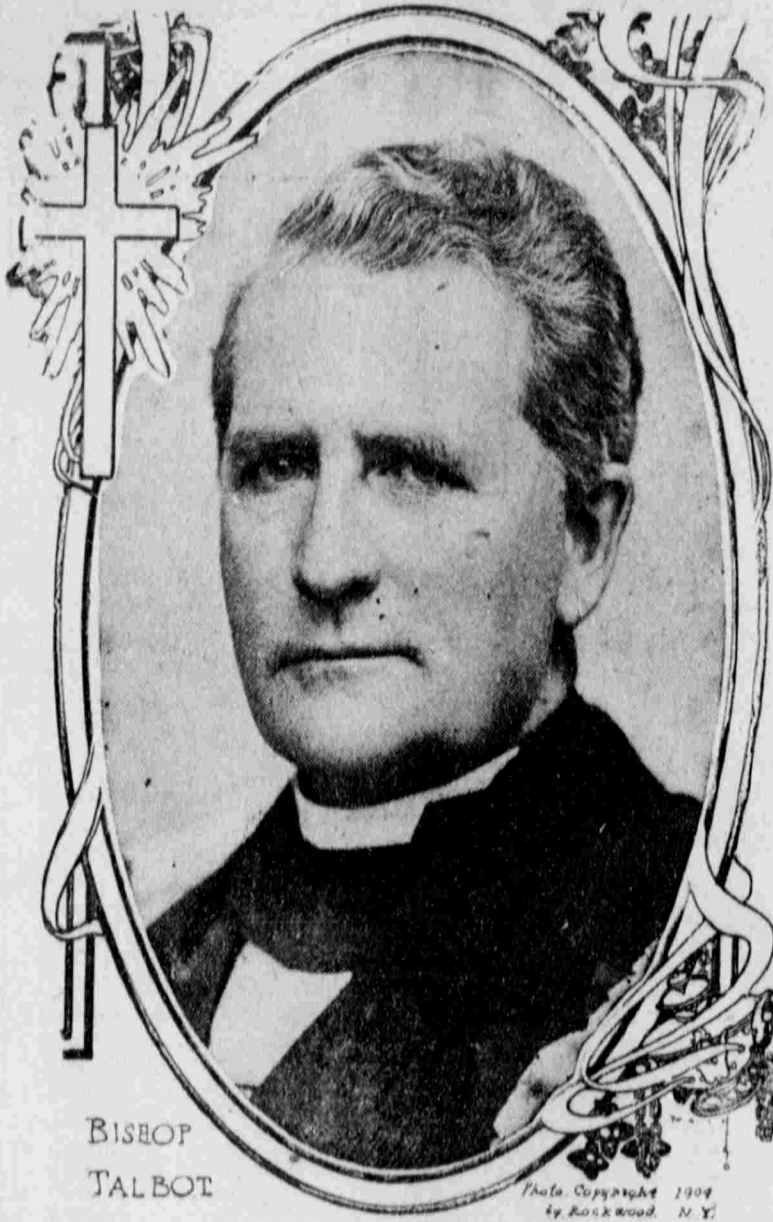
Neither can we say that there is any arrest of what are called the "higher" functions of the brain. Flash a light in a sleeper's eyes, and even if he does not wake with a start, he will at least move uneasily, thereby showing that the retinal activity of the eye is unchanged, while a bad smell will often have similar effects. The sense of touch retains its sensitiveness, so that a hand laid ever so gently upon the shoulder will awaken us, while the powers which are within the veil of sense are apparently not even dulled. The nursing mother, says Mme. de Manacéine, however fast asleep she may be, always remains alive to the slightest movement of the part of her infant.

That people have sometimes completed trains of thought or calculation in sleep is notorious, even without the classic case of Coleridge and Kubla Khan, while everybody who chooses to set himself seriously to the task can acquire the habit of waking at any specified hour. Clearly, therefore, neither the attention nor the will share in any but an imperfect manner in the sleep of the body. The only mental faculty of which the sleeper suffers the temporary loss seems to be that of consciousness.

HYPOTHESIS OF ITS CAUSE.

What, now, is the cause of this phenomenon which plays so large a part in our lives? Up to a short time ago no answer could have been suggested

THE ACCUSED BISHOP.



BISHOP TALBOT

Bishop Talbot of Pennsylvania has had some sensational charges brought against him and an investigation is to be made at Reading, Pa., commencing Jan. 16. The trial promises to be one of the most sensational ecclesiastical investigations that has occurred in this country.

which goes to make up consciousness. But, it should be noted, not all the neurons sleep at one time. For sleep, which, as we know from the example of daisies and other flowers, extends to the vegetable world as well as to the animal, is itself a reflex action brought about by necessity in the first place, and perpetuated by heredity. The blood leaves the brain at regular times, as M. Claparede and others have shown, not so much because its functions are exhausted, as to prevent them from becoming exhausted. Now, the consciousness is kept alive during the whole of our waking hours, and therefore requires a rest to enable it to regain its pristine vigor more than any other faculty. The same cannot be said of functions like the attention and the will, which are only exercised at irregular intervals, and which, therefore, can well remain on guard while the others sleep.

THE WOMAN IN THE CASE.



Mrs. Emma Elliott

Mr. Wells' suggestion that sleep is dispensed with by ants is negatived by the researches of M. Fretet, but it is, perhaps, his multilateral vision that has led to the formation in America of a club which pledges its members not to sleep more than four hours a night, all told. This is about as sensible as if every member should agree to wear boots only ten inches long; but there can be little doubt that excessive sleep has an injurious effect on the organism. The muscular strength is less on waking than that before sleep—as can be proved by the measuring instrument called the dynamometer—and does not fully recover for two or three hours. Hence, too much sleep in time leads to the permanent impairment of the muscles, and no doubt of the other vascular tissues as well. Luckily, this supplies us with an easy method of finding out whether we sleep too long. If, on waking, the eyelids of a healthy person not exposed to accidents like excessive eye strain, bad air, or constant cigaret smoke, remain for some time swollen and red, he may be sure that he would do better with less of the "balmy sleep" which is, in moderation, "nature's sweet restorer."—Frank G. Landis, in Chicago Tribune.

A WASTE OF TIME.

Health Commissioner Darlington of New York was talking about the water supplies of the world's great cities. A foreign city was mentioned that, after a good deal of expensive investigation, had decided not to improve its notoriously impure water service, and the commissioner said: "That city reminds me of a magistrate I heard about the other day. "A man was arrested and brought before this magistrate, and the case was argued, pro and con, for a long while. The magistrate listened intently, and he made numerous notes. To the eloquent arguments of the lawyer for the defense he would not give approval. A little later the passionate periods of the lawyer for the prosecution would cause him to murmur low phrases of assent and encouragement. "Finally, exhausted, the lawyers ceased to talk. They had said everything they could think of. They had no more ideas left."

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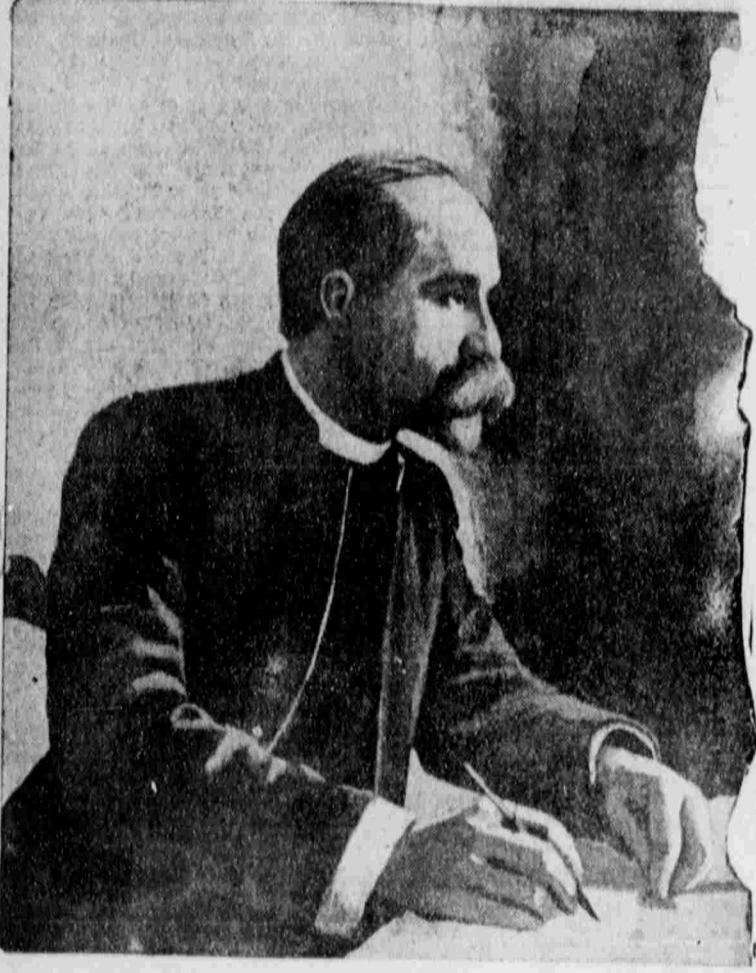
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REV. DR. IRVINE



Dr. Ingram N. W. Irvine is the priest whom Bishop Talbot unfrocked. Dr. Irvine's friends allege that he was disgraced because he had excommunicated Mrs. Elliott, a divorced woman.

limbs often begin to twitch with a regular motion, and he will sometimes even utter low cries as if in chase. Evidently he is dreaming of his natural pursuit of hunting, and, like Mr. Kipling's Brugglesmith, in his magnificent mind is furiously running. But let him alone and keep quiet, and cries and twitches alike grow still. The sleep has passed into its third and deepest stage, and from this it requires an appreciable effort to awake him. When he does awake he will probably be found heavy and languid, will stretch himself

to the question, but now the neurotic theory, with which newspaper readers should, by this time, be familiar, has given us at any rate a working hypothesis to fit the facts. M. Mathieu Duval has shown with much skill how probable it is that the tentacles or lateral prolongations of the neurones of the sleeping brain droop and retract like those of the sea anemone when the water recedes from it. Hence they are no longer in free communication with each other, and we thus lose that faculty of association and comparison

HEAD OF COMMITTEE OF INQUIRY.



Rev. W. B. Bodine is the head of the committee of inquiry that will hear the charges against Bishop Talbot. Rev. Samuel Upjohn is the prelate to whom the famous "Upjohn letter" was written. Rev. Harris is one of the committee.

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