

accustomed. If a man who smokes two cigars every evening is induced at some time to smoke three, or if a smoker of bird's-eye ventures to replace it by cavendish, he may, when he has gone to bed, find he cannot sleep; and the cause of his sleeplessness is the smoking of more or of stronger tobacco than by habit he has hitherto borne without discomfort.

Men of distinctly nervous temperament, or men in whose temperament there is a distinct and considerable admixture of the nervous element, are usually the largest smokers. Men who are slow and calculating are rarely smokers; men whose activity is of an objective type are happy in rarely feeling the nervous unrest which tobacco calms. Tobacco-smoking stimulates the cerebral circulation; it disposes to a succession of pleasing ideas by inducing an easy flow of mental activity. But this stimulation of the blood-flow in the brain is sure, if pushed to undue limits, to induce cerebral vaso-motor debility or paralysis, and, as a consequence, persistent conscious thought. Sometimes, then, a man consults us for the relief of insomnia, and we find he is young, he has had no trouble, he takes plenty of food and exercise, and he does not overtax his brain. But he is an excessive smoker; he smokes morning, noon, and night, and he has gone on from the mildest tobacco to the strongest. He need not give up, or shorten, or change his work, and he surely does not need drugs; cut off or cut down his smoking, and he at once sleeps well. And so, *mutatis mutandis*, does alcohol cause sleeplessness. The man who drinks to commencing drunkenness mostly sleeps soundly, if not well. But many a so-called moderate drinker knows that he sleeps badly if he takes a little more than his usual quantity of wine after dinner, or even his usual quantity of some unusual wine. Alcohol flushes and dilates the smaller blood-vessels, especially those of the brain; if such a condition be maintained sleep is disturbed or wanting. We have all seen the insomnia of delirium tremens: the patient cannot sleep because the lesser arteries of his brain are paralyzed by alcohol, and sleepless cerebral activity is the inevitable consequence. Far short of what is usually called alcoholism, we often meet with cases of insomnia in which alcohol alone is the cause of the wakefulness. The patient may pride himself upon his moderate use of fermented stimulants, and he may be wholly ignorant of the cause of the sleeplessness for which he consults us. We fail to find any sufficient psychic cause for his insomnia; but if we take away or diminish his wine or his grog, or induce him to consume it before the evening, we find that he shortly begins to sleep well.

The effects of tea and coffee in causing wakefulness are well known. Some individuals are extremely susceptible to the action of these stimulants. We sometimes meet with persons, mostly women, who habitually drink enormous quantities of strong tea; such people are usually troubled with flatulent dyspepsia, and sleep badly, but they rarely suffer from serious insomnia.

On this occasion I can only mention those varieties of toxic insomnia which are apt to occur in gouty persons, or in those whose kidneys are failing, and which arise from the accumulation in the blood, in consequence of deficient excretion, of the products of tissue-metamorphosis. Insomnia of this kind is rarely complete. But the patient may complain that he sleeps very badly, that he lies awake for some hours and has great difficulty in getting off to sleep, that he is easily awakened and wakes frequently, and that he always dreams when he sleeps. In such a case we may find a pulse of high tension; the aortic second sound may be accentuated, and the first sound of the heart may be reduplicated at the apex. Where there is chronic renal disease, we may also find the direct physical evidences of the characteristic cardiac hypertrophy which accompanies chronic interstitial nephritis. I believe that insomnia in such cases is due to the maintenance of a state of high tension in the cerebral arteries. I wish to impress upon you that we find the clew to many cases of sleeplessness in the signs of the gouty diathesis or in the discovery of albuminuria.

Again, there is a senile form of insomnia. You may perhaps have observed among your friends that an exaggerated appreciation of the merits and value of early rising mostly increases as age advances. The sleeplessness from which many old persons suffer is mainly, if not entirely, the result of senile degeneration of the smaller cerebral arteries. Those vessels are less elastic and less contractile than in health, and their weakened walls often lead to their permanent dilatation; they are physically unable to adapt themselves fully to the condition of relative arterial anæmia which is requisite for healthy sleep. The tendency of this condition of the blood vessels of the brain to prevent or diminish sleep is probably to a great extent counteracted by the cardiac feebleness which so frequently and so fortunately coexists with the vascular changes.

In the treatment of insomnia we must often use soporifics. Of these the chief are chloral, opium, morphia, the bromides, Indian hemp, alcohol, and affusion with cold water. The successful treatment of a case of sleeplessness follows from the discovery of its cause. In the severe forms of psychic insomnia we must at once secure sleep by some efficient hypnotic. I prefer chloral. By its use alone we can often quickly cure acute insomnia depending upon some sudden mental shock or strain. A few nights of sound and sufficient sleep, artificially induced, will do more than anything else to restore to the brain the power of sleeping without aid from drugs. In the more chronic forms of psychic insomnia, where the sleeplessness or wakefulness usually depends upon prolonged worry or overwork, I employ chloral sparingly. It should only be used as a temporary remedy, when it is necessary that we should at once secure a fair amount of sleep. The patient ought never to be allowed to swallow this dangerous but valuable drug whenever he feels disposed, or to apportion its dose for himself; he ought only to take it upon the special prescription of his doctor. An overworked man must never be permitted to go on with his overwork, and habitually secure sleep by chloral or any other hypnotic. In such a case we must always aim at preventing the sleeplessness by removing its cause, instead of permitting that cause to continue and trusting to counteract its effect by medicines. When a man cannot sleep because he works his brain too much, we must insist that he stop or greatly diminish his work. But I must warn you that real work is rarely the cause of insomnia. Work fits for rest. It is mostly worry, not work, that brings unrest. It is not work that wears, but worry. A holiday, with complete change of scene, will often do much to effect a cure. The old maxim, *Cebum non animum mutant qui trans mare currunt*, like many other maxims, old and new, is not always wholly true. Send an overworked and worried merchant or barrister from his counting-house or his chambers in a busy town to a quiet village by the sea, or across the channel to a French watering place, and let him substitute walking, and bathing, and rowing, and fishing for his books or his briefs, and he will often need no physic to make him

sleep soundly and sufficiently. But many cases of psychic insomnia can only be cured with the aid of drugs. In the well-nourished, bromide of potassium is by far the best hypnotic. It soothes the irritated and irritable cerebral cells; it is a direct and absolutely safe brain sedative, and it is marvelously powerful in producing nervous calm. But it must be given in full doses, thirty to sixty grains at bedtime. It is well to conjoin with it some drug which will favor the contraction of the weakened cerebral vessels; for this purpose we may give tincture of ergot or tincture of digitalis, one or both. In many cases of chronic wakefulness, arising from mental strain, the patient is distinctly anæmic. Unless the anæmia be remedied the insomnia cannot be cured. The patient's pale face and compressible pulse declare the condition of his blood. Such a person mostly feels drowsy when he is up, and wakeful when he lies down. Of course he needs iron; we may give him a grain or two of reduced iron, sprinkled on a piece of bread, or a wineglassful of Orezza water, after each meal. His diet must be liberal, containing plenty of fish, meat, and eggs. For such a patient alcohol is often the best hypnotic. To many people a "night-cap" of toddy is a superfluous and hurtful luxury. But it can give, perhaps better than anything else, rest and sleep to the exsanguine and worried brain. We must never be blind to the responsibility we incur when we prescribe alcohol. When we use it as a remedy in the treatment of disease we must state distinctly the reasons for its adoption, and we must discontinue it, as we discontinue the employment of other drugs, when the conditions which called for its exhibition have disappeared. If I am sure of anything in therapeutics, I am sure that alcohol is the best hypnotic in many cases of chronic psychic insomnia when the patient is worried, sorrowful, weakly, and anæmic.

Many minor points are worthy of attention in the cure of chronic psychic insomnia. In most cases, whether he sleep badly or well, the patient ought, from day to day, to go to bed and get up at some fixed hour. Healthy sleep tends to occur periodically. Daily bodily exercise, short of great fatigue, must be enjoined. Riding in a carriage is good, walking better, riding on horseback the best of all. A worn and self-worrying man, wrapt up in the absorbing current of self-consciousness, may take exercise in a carriage or upon his legs and still keep up his fretting, but he must come out of himself when he gets into a saddle. Gardening, for those who live in the country, affords good exercise, and is very efficient in keeping up objective attention. Those who live in towns may find good objective employment in chopping wood; if they have not trees to fell, they can at least copy Archbishop Whately, and give their minds a refreshing objective turn and their muscles healthy work by cutting up firewood. People who find it difficult to get off to sleep are sometimes advised to diligently and monotonously count one, two, three, up to a thousand or more, until they fall asleep; to watch in imagination each one of a large flock of sheep squeezing through a narrow opening; to picture some familiar landscape and keep the mind fixed upon it; to repeat the letters of the alphabet, etc. These are expedients for changing the current of cerebration. For a night or two one or the other may succeed, but they cannot be relied upon. These practices often even keep up wakefulness; when the mind attends closely to them they perpetuate the subjectivity which keeps the brain from resting. Very often the surest way of keeping awake is to try hard to get to sleep. We do most things best when we forget ourselves; going to sleep is no exception to the rule. When the contractility of the cerebral arteries has become much weakened by prolonged thought, and when, as a consequence, there is wakefulness, sleep may often be induced by the temporary application of cold to the general surface of the body. A person who has been lying awake will often fall asleep at once after getting out of bed and sousing his head, neck, and hands in cold water, or after (following Charles Dickens's plan) standing at the bedside until he feels chilly, and turning over, shaking up, and cooling his pillows and the bed-clothes.

Just a word about the treatment of the other varieties of insomnia. In the toxic kinds we take away or diminish the tobacco, the alcohol, the tea, etc., as the case may be. *Cessante causa, cessat effectus*. A discussion of the treatment of gouty insomnia and of the sleeplessness arising in some chronic renal diseases would involve a consideration of the whole question of the therapeutics of the maladies upon which these forms of wakefulness depend. I shall only say that in gouty lithiasis, with a pulse of high tension, I have confidence in the curative effects of colchicum, supplemented by the exhibition of dilute saline purgatives, such as Pullna, Friedrichshall, Hunyadi Janos, or Rakoczy waters. Senile insomnia is very obstinate; perhaps in the bromides, with full doses of hop or henbane, we have the best and least harmful means for its relief.—*Lancet*.

CURARE IN EPILEPSY.

By Dr. C. F. KUNZE.

My experiments with Curare (Woorara) in 35 cases had very different results. Nine of the 35 cases made a perfect recovery. In most of them the disease had not been existing for a long time, say one, three or five years; in two of the successful cases the patients had been epileptic subjects for over 20 years. Among those who recovered there were some cases in which the disease had produced a well defined influence on the mental condition of the patients. Two of the cases which recovered were undoubtedly cases of inherited epilepsy; the history of these (brothers) is given below. I could obtain no good effect in old drinkers. My experience with Curare leads me to say that *Curare is one of the most efficient remedies for epilepsy*. A case of epilepsy should not be regarded as permanently cured until a long time after the occurrence of the last attack. A short time ago I saw the return of the disease after an apparent recovery, extending over a period of 4 years.

I make a solution of Curare according to the following formula:

R Curare.....grs. viiss. (7½)
Aque dest.....m. 75.
Acid. hydrochl. pur.....m. i

hypodermically, and I inject about 8 drops every five or six days.

The addition of this small amount of hydrochloric acid makes the solution a clear one, and by this slight modification of my former formula I have avoided almost entirely the severe abscesses at the point of injection.

History.—Edgar and Hugo Ufer are the sons of a subaltern officer in the Internal Revenue Service at Butterfield, Prussia. The father sustained a severe injury on the head, when, in 1846, during his service as a soldier he tried to stop the runaway of four horses attached to the carriage of the

late King Frederick William IV. of Prussia. He was thrown down, dragged along for a distance and received a kick on the head by one of the four stallions. In consequence of the injuries brain symptoms developed, and the man suffered for over a year from convulsions and very severe headache. Five or six years later the injured man married and became the father of two sons, both of whom were attacked with epilepsy, one in his 18th and the other in his 13th year.

Hugo, the elder of the two brothers, is now 25 years of age, and of sickly constitution. The first attack occurred July 6th, 1871, lasting for about one minute; another attack of somewhat longer duration took place the next day, being followed by three attacks on July 9th, occurring with intervals of from four to five hours. July 10th, again, three attacks; July 11th, a light, and three-quarter hour afterward a severe attack, lasting for about fifteen minutes. This last attack commenced with a disposition to weep, dizziness in the head, followed by a sudden unconsciousness. After the attack was over, there was a sensation of numbness over the entire body, the speech was heavy, the patient felt very tired and suffered from very severe headache. From July 11th to July 16th, generally three attacks occurred daily. July 16th, 1871, the first injection of Curare was given. After the injection the patient felt slight symptoms of unconsciousness and dizziness until toward night he felt perfectly well.

No more epileptic attacks occurred after the first injection. Once every week I gave the patient an injection. After three weeks the prodromatic symptoms, indicating the coming attack, became prominent, but disappeared soon after the prompt injection of Curare. After I had, during the period of six weeks, used about 3 grs. of Curare, I omitted the injections, and until to-day (end of 1877) no more attacks have occurred.

Edgar, the younger brother, is now about 21 years of age, and is also not very strong. The first severe attack occurred March 21, 1870, the second in June, the third in November, 1870. The duration of the first attack was not quite an hour, with the second one the patient was unconscious from 4 P. M. until midnight. The attacks came on without the outery, and commenced with the sensation as if a stream of cold air was flowing from the mouth. Between the large attacks small ones of a few minutes' duration always occurred. The first injection of Curare was given July 20th, 1871. From July 21st to July 25th there was some dizziness, and the patient felt as if an attack was coming on. This sensation, however, disappeared before long, and not a single attack occurred since that up to date (1877). The quantity of Curare used also amounted to 3 grs.; the injections were first given every week, afterward every second week.

Hugo Noack, in Halle, Y. S., suffered since infancy from convulsions, which first commenced when he was only ½ year old and returned about once in four weeks. No other member of the family ever had epilepsy. The attacks always were complete. As to the cause of this disease, the mother of the patient states that she once nursed the child shortly after a time of great anger. She says the attacks first made their appearance two hours later, and never disappeared since. The unfavorable influence of the disease on the patient's mental faculties was well defined during the age of school years; he did not learn well at all, and especially his memory was gone almost together. The attacks occurred so frequently that hardly a day or night passed by without convulsions. Noack came under my treatment in his 23d year. After from six to eight injections the convulsions disappeared, and since then, for about eight years, no attack has occurred. Noack is now 31 years of age, married, and is the father of two children, none of whom have suffered from convulsions up to this time. His mental faculties, and especially his memory, have greatly improved since his recovery. Noack is employed now on one of the large railroads, and fulfills his duties satisfactorily to his superiors. —Translated by PAUL H. KRETZSCHMAR, M. D., in *Hospital Gazette*.

TARTRATE OF LIME.

By A. SCHEURER-KESTNER.

TARTARS, lees, etc., are essentially composed of potassium bitartrate, with which calcium tartrate is often mixed. For the determination of the potassium bitartrate a standard alkaline liquid is generally caused to act upon a hot solution of the sample in water. But it has been found that this process leads to exaggerated results. Certain tartars, and especially certain lees, contain acid substances of the nature of tannin, which act upon litmus paper and consume the alkaline liquid just as potassium bitartrate would do. To obtain exact results it is therefore necessary to ignite the sample, and determine the potassium in the residue by means of standard acid. The determination of calcium tartrate is often made by dissolving the sample of tartar in hydrochloric acid, and precipitating with caustic soda. This method gives satisfactory results if the specimen to be analyzed is free from calcium sulphate. In the contrary case the numbers found are always erroneous, the error being proportionate to the quantity of gypsum present. It is known that calcium sulphate, in presence of an alkaline solution of a neutral tartrate, is converted into neutral calcium tartrate, while the alkaline base combines with the sulphuric acid. The reaction is so complete that in certain works it is used for the preparation of calcium tartrate for the formation of tartaric acid. At the moment when the hydrochloric solution of the tartar is neutralized, in order to precipitate the calcium tartrate, the most favorable conditions are obtained for the formation of this body at the expense of the calcium sulphate, and if there is gypsum in solution, as often happens, the quantity of calcium tartrate obtained by no means represents the amount actually present, but is augmented in equivalent proportions. Some authors have recommended the following process: Calcination of the tartrate to be analyzed, when the tartrates and bitartrates are converted into carbonates. The potassic carbonate is dissolved in water, and shows on titration the quantity of bitartrate originally present. The calcium carbonate remaining on the filter shows, in like manner, the value of the pre-existing calcium tartrate. But this process, though accurate when the tartar is free from gypsum, is otherwise defective. Hence the following method is to be preferred: The sample is dissolved in hydrochloric acid, and the filtered solution is neutralized with caustic soda, and then precipitated with calcium chloride. All the tartaric acid is precipitated as calcium tartrate. The precipitate is washed, calcined, and the calcium carbonate obtained is titrated in the ordinary manner. If the tartar has been previously titrated with a standard alkaline liquid it is easy, from these two data, to calculate the respective quantities of potassium bitartrate and calcium tartrate; but this is only possible when the sample is free from other acid products.