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OBSERVATIONS  
ON THE  
CAUSES AND TREATMENT  
OF CERTAIN FORMS OF  
SLEEPLESSNESS

BY

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## PREFACE.

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MANY of the following observations were embodied in a paper which was read before the British Medical Association, at the last Annual Meeting of that body, in London, in August 1873. The communication was likewise subsequently published in the Journal of the Association.

In the succeeding pages I have made such additions to my original paper as may, I trust, render it a somewhat less incomplete, albeit very brief, contribution to a subject of much importance in practical medicine.

LONDON: *January* 1874.

## PREFACE

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LONDON: 1874.



## SLEEPLESSNESS.

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I AM desirous to direct attention to some causes of sleeplessness, which, I think, are hardly sufficiently recognised or adequately met by the resources of practical medicine. The remarks I have to make have reference more especially to causes of insomnia acting in persons who are either in apparently good health, or who, at any rate, are not decidedly ill. Some of the conditions which I shall mention as leading to loss of sleep will, however, be shown to occur in persons who cannot be said to be in good health. Systematic writers on the practice of physic only incidentally allude to the subject of insomnia, and more especially when they treat of certain cerebral affections, of delirium tremens, early phases of insanity, and stages of acute inflammations and fevers.

There are naturally idiosyncrasies with regard to sleep; but I have nothing to say about these, further than that they must be so far considered in every case of insomnia that comes under observation. It should be remembered that many persons, apparently healthy, declare that they have hardly slept during a night, and believe what they aver, when they have really only lost two or three hours of a long night's rest;



not that such a loss is unimportant by any means. So-called bad nights exert a very harmful influence upon the sufferers; and much subsequent bodily and mental enervation, much nervous irritability, and even, I believe, misdirected appetite, are due to this partial loss of rest.

Much light has been thrown upon the physiology of sleep during the last fifteen years; and the teaching of those who have best investigated the subject requires us to believe that the cerebral condition is essentially one accompanied by a feebler and diminished circulation of blood in its vascular system. It is also within the reach of capable observers to assure themselves that the most constant (physiological) cause, and certainly the most frequent accompaniment, of sleeplessness is an opposite condition, or one of active and increased circulation of blood in the brain. These views are the reverse of those that were formerly taught upon the subject. The statements of Boerhaave, published in 1708 ('*Institutiones Med.*'), '*Motus arteriarum, venarumque et cordis, fit fortior, lentior, æquabilior, plenior, idque per gradus diversos augendo, prout augetur somnus;*' and again—'*In somno augetur motus cordis,*' were corrected, as were also many doctrines of the same illustrious physician, by the acumen of Cullen, who taught that '*an increased impetus of the blood in the vessels of the brain was the principal cause whereby the waking state of it was supported*' ('*Institutions of Medicine,*' 1770). The more recent researches of Durham and Hammond have clearly shown that the brain is in a comparatively anæmic condition during sleep, and that the blood thus removed



from the head is more freely supplied to the viscera and integuments. We have in this latter statement an explanation of the commonly observed fact, that perspiration is present in inordinate amount during sleep as compared with the state of wakefulness.

I believe that one of the most common causes of sleeplessness in persons otherwise not in bad health, is dyspepsia in some of its forms; and, although most observers would be prepared to agree to this view, I think that the subject has not received sufficient attention. As Sir Henry Holland has remarked ('Medical Notes and Reflections,' p. 218), 'no rules are more important than such as apply to the relation between digestion and sleep;' and he proceeds to show that all such rules are exceedingly scanty and incomplete, 'notwithstanding the perpetual experiment which life affords upon the subject.' I aver, then, that dyspepsia is not only one of the commonest, but also one of the least recognised, of the causes of loss of sleep; and amongst reasons for this statement are the facts that the symptoms of digestive disturbance are sometimes, indeed frequently, not appreciable, or not at all prominent, at the time of retiring to rest; and also, that the diurnal digestion may be in a comparatively vigorous state. Most persons are familiar with acute dyspepsia as occurring in the night, and supervening upon errors of diet; and in such cases a disturbed sleep is rudely broken by an attack of cardialgia or acid vomiting. The dyspeptic symptoms to which I specially allude as interfering with sleep, are less severe than those just



enumerated. The patient retires to rest and sleeps, it may be calmly, for a short period, but he then awakes, and forthwith secures no more sleep for several hours. To such a form of dyspepsia Cullen alludes, and he was the victim of it himself. He writes, 'Persons who labour under a weakness of the stomach, as I have done for a great number of years past, know that certain foods, without their being conscious of it, prevent their sleeping. So I have been awaked a hundred times at two o'clock in the morning, when I did not feel any particular impression; but I knew that I had been awaked by an irregular operation in that organ, and I have then recollected what I took at dinner, which was the cause of it. Dr. Haller is liable to the same complaint; and, in his larger work especially, he gives the particulars of his own case, and to the same purpose that I have done, as he learned it from his own experience.' So far as I know, nocturnal dyspepsia of this character is not described in treatises on digestive disorders. The sources of it, however, may, I believe, be various. There may be no actual suffering experienced, and, beyond dryness of mouth, burning soles of the feet, restlessness, and heat and throbbing in the head, there is little to complain of.\* These symptoms may supervene several hours after the last meal, but they never occur unless some error of diet has been committed; and it may not always be possible, as in Cullen's own case, to attach blame to the particular article of food, or to the unwhole-

\* The cerebral circulation is in this, as in most forms of insomnia, increased in activity.



some combination of aliments which has led to the result. And naturally, the question of idiosyncrasy must be considered in all such cases.

It seems most probable that the symptoms are due to a too acid condition of the contents of the stomach and upper part of the small intestine, and it is certain that excess in fatty and highly seasoned food, in fruit, and in wines of various kinds, is the chief exciting cause of the dyspepsia. Hence there is no more fertile source of this trouble than the fashionable dinner-party, especially if there be indulgence in the sweet courses and in fruit, and if the mischievous dietetic error, peculiar to Englishmen, of mixing various wines be committed. The misery of insomnia is rendered more certain subsequently, if both strong coffee and strong tea be taken after such a dinner, as is not unfrequently the case. The dyspepsia is thus aggravated by special cerebral excitants.

The form of indigestion known as '*dyspepsie des liquides*,' described by Chomel ('*Des Dyspepsies*,' Paris, 1857, p. 99), and by Dr. Thorowgood in this country, may also prove excitative of sleeplessness.\* But this affection, together with such symptoms as I have just described, are best referred clinically to the type of atonic dyspepsia,† and, when the immediate

\* A temporary form of this sometimes occurs in hot weather, when too much fluid is eagerly drunk, both during and after meals. The skin and kidneys are unable to remove the excess for some hours.

† The acid dyspepsia to which attention is prominently directed is certainly commoner in persons predisposed to gout, and dietetic errors and excesses naturally aggravate this tendency.



discomforts are relieved, a more prolonged therapeutic course is needed to promote recovery.

It is needless for me to do more than allude to the almost intolerable insomnia—delirium it may be called—induced by excess of tea or of coffee taken late in the evening. All persons are not affected by these, and some people can even sleep soundly after taking one or other, or both, provided they retire to rest immediately, and do not begin to do brain-work. It is less well-known, however, that smoking strong tobacco late at night is a source of sleeplessness to some people, and if practised after dietetic errors only tends to aggravate the subsequent wakefulness.

I pass on now, to speak of sleeplessness due to over-exhaustion, both bodily and mental. It is well-known and within the experience of most persons, that a certain point of fatigue may be reached when sleep is impossible. This condition is the result of increased flow of blood to the brain, consequent on vaso-motor paresis. After a day of incessant activity, when body and mind have been unduly taxed, this state may be reached. If, in addition, there be anxiety of mind, or a persistent source of worry, the insomnia is aggravated. Anxiety for the business or pursuits of the morrow often causes such cerebral activity as to forbid sleep. Candidates for honours in the Universities, either for places in the Class Lists or for distinction in athletics, are sometimes sufferers; so, too, are schoolboys. The knowledge that a certain amount of sleep is absolutely necessary to secure success in either instance, leads to



an unwholesome apprehension of a restless night, and disquiet and vascular throbbing continue perhaps for hours. Again, pecuniary anxieties are a special source of brain-irritability, leading to loss of sleep. To 'take off one's cares with one's clothes,' as has been said, is indeed an excellent rule, but one, at times, very difficult of accomplishment.

Insomnia results occasionally after acute inflammatory attacks and short illnesses have passed away. The habit of sleep has been broken, the regular pursuits are not yet fully resumed, and, in addition, there is perhaps defective nervous tone which has not been re-established by complete convalescence. This form usually ceases to give annoyance as the general health is restored. Change of scene and removal from the sphere of duties, are however, imperatively called for as soon as possible.

Literary men suffer from insomnia oftentimes as the result of brain-work, executed at the small hours of morning, and sometimes because of bodily exhaustion superadded from sheer want of nourishment. Brain-work, in addition to the tax upon the ordinary powers by the pursuit of a profession, is, I believe, highly exhausting to the majority of those who practise it, especially amidst the calls, turmoil, and high pressure of life in a metropolis. The state of bodily fatigue to which I allude, is sometimes experienced by travellers who, after a hard day of locomotion, with perhaps irregular, and not very nourishing, meals, endeavour to procure a night's rest without taking a



sufficient or suitable repast in the first instance. And it is precisely at this meal that the grossest dietetic mistakes may be committed. The digestive powers are at a minimum, and yet there is a large demand for nutrition. The difficulty is not always easily to be met, but attention to the rules of physiology will in most instances, I believe, secure the wished-for result both for stomach and brain. And so, for the throbbing head and busy brain of the literary man or student, there are rules to follow, which I shall mention presently.

The treatment of cases of insomnia due to nocturnal dyspepsia is to be met by remedies affording relief temporarily, and by measures calculated to improve the digestion generally. Naturally, if due discretion were exercised at the last meal taken, no disturbance would occur, but I have already shown that it is not always possible to discover the offending article or articles of diet. A large meal taken late after exhausting work, and when solid food has not been eaten in the middle of the day, is liable to be digested with difficulty. Hence long intervals between meals should be avoided. There is no harm in varied diet at a late repast, provided too much be not taken, and the food be skilfully cooked. As adults are the sufferers from this complaint, so in most cases have they the requisite knowledge of the particular articles of food that best agree with them.\* The question as to stimulants, how-

\* In the case of a nourishing meal being required late at night, after a hard day's travel, I know nothing more suitable than good beef-tea, if



ever, is less readily answered. No one can doubt that much of the dyspepsia of the affluent classes in this country is due to indiscreet mixing of liquors—a practice which is singularly in discord with the science and skill now imported into culinary matters.

It is at all events sufficiently well-known that to drink one wine is most wholesome for dyspeptics; and whether it shall be claret, dry sherry, or alcohol in some form properly diluted, must be decided in each case. In some instances of acid dyspepsia, port wine is of use, and appears to call forth less acid than sherry; perhaps, as Dr. Budd has suggested, on account of its astringency. Abstention for a time from wines and alcohol in any form may sometimes be tried with benefit in these cases. For the immediate relief of the insomnia and dyspepsia full doses of alkalies should be given. The calcined magnesia, or solution of carbonate of magnesia in excess of carbonic acid, and the compound rhubarb or Gregory's powder, are amongst the best remedies. A large draught of cold water, or Seltzer water, will also prove effectual at times. The success of the therapeutical measures throws light upon the ex-

it can be had; and, by the aid of prepared extracts of meat, this is now quite within the reach of travellers in the most outlandish quarters. Chicken, and simply prepared salad of lettuce, is likewise easily digestible late at night, by even delicate and exhausted persons. Good draught beer is advisable, if it agree generally, or dry champagne: the latter, indeed, is often an excellent remedy. In cold weather, mulled claret is very valuable; and something is perhaps due to the nutmeg in its composition, for this spice, as Cullen showed, is, in full doses, an important hypnotic. (*Materia Medica*, vol. ii. p. 204.) Lettuce has likewise similar properties.



isting cause of the sleeplessness, even when this is hardly suspected. Cullen does not state what remedies he employed in his own case, but we may rest assured that he treated himself.

The dyspepsia of liquids, as a cause of insomnia, is naturally best treated by the adoption of a diet in which less fluid is taken. The underlying atonic condition of the stomach and intestines requires the remedies proper to such a state; and here may be mentioned, as of especial value, the mineral acids, strychnia and quinine.

For the sleeplessness ensuing upon tea or coffee taken late at night, there is hardly any remedy that I know. To give alcohol in any form with a view to induce sleep, after excess of tea, is of no use. I believe it is better to read an easy and not too entertaining book when in this condition, for sleep is thus more quickly induced than when the sufferer lies conscious of each cardiac and vascular pulsation, and agonised by floods of rushing thoughts.

For the relief of the insomnia following exhaustion, either mental or bodily, there is happily a good deal to be done. No greater mistake can be made than to retire to sleep at the time of completed digestion.

It is almost proverbially known to be bad to go to bed fasting. Insomnia, from this cause, is, of course, easily met by taking some simple food. People, whose duties occupy them far into the night, and who have exercised their minds with any effort, should take a full evening meal, or, failing this, nourishment must be had later on. And where there is, from any cause,



undue pressure of work, mental strain, or anxious watching, I know no nutriment so suitable as well-made beef-tea,\* or extract of meat. The latter is of especial value, being always at hand, and if taken in the form of Mr. Darby's extract—the best, I believe, of all such preparations—and spread upon bread or biscuits, is eminently calculated to relieve the craving felt, and to supply a readily digestible little meal. Such measures, I think, are more to be commended than was the practice of literary men fifty years ago, which consisted in the imbibition of whisky punch, made with infusion of green tea.

I should recommend all bad sleepers who cannot trace their insomnia to indigestion, and who may have passed an unduly long interval since their last meal, to employ extract of meat in the manner I have just described. I can, at all events, bear testimony to its value from personal experience, and I have known benefit to be largely derived from its use in other instances.

A cigarette or a mild cigar before going to bed will induce sleep in some persons, and may be tried for this purpose by those who are not unaccustomed to employ tobacco.

The sleeplessness due to cold feet in winter time, resulting from alterations of arterial blood-pressure in the body, is best met by the use of pediluvia at bedtime ;

\* An excellent and portable form of meat-extract, suitable for making beef-tea, is prepared by Morel, 210 Piccadilly. It is preserved in bladder, and will keep for any length of time. Gillon's essences of beef and chicken are likewise much to be commended.



and the addition of mustard or tincture of iodine is valuable, especially where the sufferer is a victim to chilblains.

There is a prejudice sometimes against the employment of a hot bottle in these cases. I know of no reason why this means may not be adopted. The bottle, if of earthenware or glass, is best wrapped in flannel; but those made of vulcanised india-rubber are the most convenient. In many cases it is sufficient to wear woollen stockings or to envelop the limbs in flannel, and the artificial heat may thus be dispensed with.

In cases of languid circulation in bedridden invalids, or in those confined to bed by injuries requiring surgical aid, where sleep is apt to fail at night from tedium and unwonted inactivity, the employment of the flesh brush or of horse-hair gloves is of remarkable value. Sleep often ensues rapidly after the whole surface of the body, or as much of it as can conveniently be reached, has been well rubbed. One effect of this passive exercise is to draw away blood from the internal organs to the peripheral vessels, and thus the brain is relieved from a too active circulation.

Experience shows that a prolonged nap after a late dinner interferes with proper sleep at the usual time. I believe that a short sleep of a few minutes ('forty winks') is really valuable after dinner to those who have to work late at night. If the sleep be of an hour's duration, digestion is disturbed, and, in some cases, nightmare occurs immediately on going to bed.



Sleeplessness may sometimes be the result of mere bad habit. There may be no error of diet as the cause, and no dyspepsia; but there is simply a morbid apprehension as the head is laid upon the pillow that sleep is impossible, and forthwith the brain begins to be busy. This state is most apt to supervene upon a long course of broken rest. Persons who have kept watch by the sick, especially where there has been mental anxiety and distress, suffer from this form of insomnia. The acuteness of their trouble has more or less passed away, but night brings dispeace and apprehension with it. This form is engendered, then, as a bad habit from an interruption, more or less prolonged, of one of the periodical functions of the brain. It is not possible to detach entirely, in these cases, the peculiar mental element—the active conjuring up of past scenes, or the busy memory; but, in other instances, no cause is readily to be found, and we are compelled to believe that the bad habit results from a low condition of nervous energy.

The benefit to be derived in this form of insomnia from change of scene and change of air is very remarkable, and it is, indeed, seldom advisable to employ medication. There can be no doubt of the value of the change of air in many forms of sleeplessness; but in awarding the true therapeutic value to climatic influence, we must not altogether lose sight of the effects of the *medicina mentis*. To pass from the noise and sullen heat of dwellings bordering upon the streets of London on a summer night, to a cool



and well-aired apartment, in any peaceful country district, is in itself a strong incentive to slumber ; but, beyond this, there are special aërial conditions and influences due to proximity of sea,\* nature of soil, and immediate surroundings, which unquestionably require due consideration in each case. Indeed, attention to such points is almost as necessary, in some instances of sleeplessness, as it is in the cases of sufferers from spasmodic asthma.

The best drugs to employ in such cases, if they must be employed, are the bromide of potassium or chloral hydrate. Henbane, in full doses, is also of service ; likewise the ammoniated tincture of lupuline.

Persistent odours will prevent sleep. Thus, flowers in a sleeping apartment—where, by the way, they should never be placed—giving off aroma, will affect certain people powerfully, causing headache and cerebral irritability (*vide* Moore on ‘Going to Sleep,’ p. 37. London, 1868). I have known the effluvia of certain embrocations to act in preventing sleep for a time in some patients ; belladonna, tar, and citronella, in particular, are to be blamed.

While laying stress upon securing pure air for sleeping apartments, as far as is possible, attention

\* Townspeople resorting to the seaside very commonly experience marked sleepiness during the earlier part of their stay ; and the same is sometimes the case in the pure air of the country. Long-continued exposure to air, as Dr. Handfield Jones has remarked, is a powerful inducer of sleep ; but it is to be observed that the air must be pure, and, if possible, of bracing character. Long-continued exposure to the air and ochlotie miasms of large towns is by no means so effectual an hypnotic.



must also be paid to the amount of moisture present in the air. In many instances the air is deficient in moisture, and the dry air inspired, often laden with dust, is a source of discomfort to the nasal and bronchial membranes; not only so, the influence of a too dry atmosphere is perceived by the whole cutaneous surface, and thus a source of irritation exists which is not unfrequently the last to be suspected.

In the case of bedridden persons, or during long illness, this point is to be attended to, and the absence of moisture is to be met by keeping water in the room, and, if need be, by sprinkling water on the floor. I am sure that many persons have additional cause for their sleeplessness in the dry air they inspire in the bedrooms of hotels, often during a hot season on the continent of Europe. They are committed, perhaps late at night, to a room that has been shut up and baked by a fierce sun all day, and that has not had an ounce of water in it for days. To open the windows may entail a plague of mosquitoes, or give entrance to a still more deadly malaria. In such a case I recommend a very free distribution of water to various parts of the floor. I have known quarts of water to evaporate in a single night when used in this manner, showing the urgent necessity for the employment of it.\* The same condition of dryness is met with in winter in all apart-

\* It is highly probable that ozone is generated by such a procedure as I recommend. Dr. Cornelius Fox's observations on the 'Purification of Air by the Vaporisation of Water,' in his book on *Ozone and Antozone*, and his paper on 'Coke as a Fuel in relation to Hygiene,' should be read by all interested in sanitary matters.



ments warmed by artificial heat. This is not felt where there are open fireplaces; but if stoves be employed, then all the unfavourable conditions for insomnia are present, unless the amount of heat and moisture, be duly regulated. According to Dr. Cornelius Fox, air, containing a healthful amount of moisture exhibits a difference of about five degrees between the wet and dry bulbs of a hygrometer. If the difference be greater, moisture should be added.

Old people, who however naturally require less sleep than the young and middle aged, are sometimes troubled with insomnia.

Allowing for peculiarities, and for the force of routine in forming habits, it is worth while to try the effects of a later retirement to bed in these cases than has been customary.

If the circulation be feeble, a little Hollands gin, or whisky of good quality, taken in cold water at bedtime, is sometimes of much value.

In the cases of elderly men with enlarged prostate, or with irritable bladder, sleep is at times disturbed by frequent calls for micturition. In these instances, generally very wearing to the patient, and requiring much patience also on the part of the practitioner, a good deal of relief may be secured by arranging that the diet, especially towards evening, is as little diluent as possible.

Small doses of strychnia during the day are very useful in such cases. I have record of the case of an elderly gentleman, formerly a member of the



medical profession, who, without any urinary irritability, invariably finds that half a bottle of claret taken at dinner materially increases the amount of urine passed subsequently during the night.

I would lay stress upon the importance of a better protection as regards a night-dress than is commonly worn. In this country it is the practice to wear only a cotton shirt. This I conceive to be quite insufficient. Children and old people are usually clad in flannel in addition; but all persons, except in the height of summer, should wear a loose flannel shirt to reach as far as the loins, and with long sleeves, and this is best placed over the ordinary night-shirt. In this way the sleeper becomes independent of the sudden changes of temperature which not unfrequently occur during the night in this climate, and a better ventilation of the bedroom can also be maintained.

As to the best posture to assume on going to sleep, I think little need be said. Dr. Radcliffe has lately recommended natural decubitus to ensure sleep; but, lest this seem paradoxical, it should be added that this advice is for bedridden persons, the subjects of chronic nervous disorders, and the plan suggested is in opposition to a sitting posture to be maintained during the day by a suitable bed-support. In the case of otherwise healthy people who suffer from heat and throbbing in the head as part of their insomnia, a posture with the head somewhat high is desirable in order to promote sleep upon physiological principles. A hard pillow should also be employed in such cases.



In conclusion, I would remark that the best knowledge we now possess as to the action of the drugs commonly used to secure sleep, shows us that both bromide of potassium and chloral hydrate cause diminished amount of blood to circulate through the brain ; and hence, as in many similar cases, the advance of the science of therapeutics has shed light upon the obscurities of pathology.\*

\* While these sheets were in the press, I read with much interest a remarkable paper in the *Practitioner* for January 1874, by Dr. Binz. In this communication the eminent Bonn Professor endeavours to show that the reputed hypnotic and other actions of bromide of potassium are to be received with the utmost caution, if not, indeed, with complete scepticism. This opinion will doubtless be vigorously combated, and I shall only add in this place the remark that the experience of most physicians of note in this country is entirely opposed to the views of Professor Binz ; and I do not hesitate at once to claim a larger share of attention in this matter for the carefully acquired results of clinical experience, than for any number of facts that may be elicited in the physiological or chemical laboratory. That bromide of potassium is occasionally ineffectual is certain. Sometimes good sleep is only secured the next night after a proper dose has been given ; and in most instances I think the plan, recommended by Dr. Handfield Jones, of exhibiting the drug early in the evening, several hours before retiring to rest, should be followed.