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PART I.

ORIGINAL COMMUNICATIONS.

ART. X.—*Sedatives and Narcotics in the Treatment of the Insane.** By SIDNEY JOHN CULLUM, B.A., M.D., B Ch., B.A.O. (Univ. Dubl.); Ex-Medical Scholar, Trin. Coll., Dubl.; Member of the Medico-Psychological Association of Great Britain and Ireland; Medical Assistant, Crichton Royal Institution, Dumfries.

INTRODUCTION.

IN writing a thesis on this most interesting subject, after several years' asylum experience, I am confronted at the outset with the knowledge that my available material is very small. There are two main reasons for this fact:—

1st. Although there are in our Pharmacopœia many drugs which come under the above heading, yet they may be, as regards their efficacy, reduced to a very few which are at all serviceable.

2nd. The modern treatment of the insane is directly opposed to the practice of drugging in any shape or form, and the more one sees of this treatment the more one gets convinced that, judging from results, the fewer

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drugs used the better for the patient, not only from the standpoint of recovery, but also for their physical well-being.

Indeed, I shall at once make the sweeping statement that at the present time we have not in our *Pharmacopœia*, or out of it, a sedative or narcotic which is not harmful to the physical health of the patient.

Although, as I have stated above, drugging is not now countenanced in asylum work, yet the fact remains that we shall always in certain cases require the use of sedatives. We have not as yet got one which fulfils all the requirements of what I consider to be a perfect sedative—viz., one which is harmless in its effects, quick in its action, easily administered, and permanent in its results. When we do get such a drug, not only will our recovery rate be higher, but also—and this almost necessarily follows—our asylums will not be overcrowded to the extent they are with irrecoverable demented.

In administering drugs one has carefully to consider the symptoms presented to one, and to come to a definite conclusion as to what class of drug in the first place and what particular drug of that class in the second place is likely to benefit the patient.

The drugs at our command may be roughly classified into (1) general sedatives, (2) pure hypnotics, (3) diminishers of reflex irritability, (4) motor depressants.

Now, this classification, although rough, is very sharply defined, and it is apparent that one must be very certain as to which drug is likely to be of service in each particular case.

For purposes of utility and convenience I shall divide my subject into the above four headings, briefly discussing the uses, advantages, and disadvantages of the drugs of each class according as I have found them to be of service to me in actual practice.

PART I.—GENERAL SEDATIVES.

Of the large number of drugs in this class there are only three which may be considered to be of use among the insane. These are sulphonal, trional, and cannabis

indica. I shall treat of them in their order of comparative usefulness.

Sulphonal is a white crystalline powder, insoluble in cold water, slightly so in hot, and fairly soluble in absolute alcohol.

Although it is an hypnotic to a marked degree, its slowness of action renders it almost useless as such, and it is far preferable to take advantage of this defect and make use of it as a sedative in the daytime.

The class of patients most suitable for its exhibition is one of the most troublesome in an asylum ward. They are those who are labouring under motor excitement, are noisy, impulsive, dangerous, smashing, and, generally speaking, unmanageable.

It is pitiable at times to see patients in such a state that they require continual watching, are resistive and violent, and who try the patience of nurses and attendants to the utmost degree.

To such sulphonal acts as a charm, and its advantages are very apparent. Although I object to the drug for reasons given below, yet the temptation—in fact the necessity—for administering the drug is overwhelming. The result, if given with discretion, is such that the patient is reduced to quiescence in a comparatively short period, and rendered amenable to extraneous treatment.

Dosage.—As a general rule I start my patient on 30 grs. morning and evening after food until I get them well under the influence of the drug, then gradually diminishing the daily quantity until I find out the exact dose which is necessary to keep the patient under control. The disadvantages of sulphonal are many. The fact of its great insolubility, and, therefore, difficulty of administration, renders it at the outset objectionable. I at first tried to give it suspended in mucilage, but found it a wasteful method, and, moreover, in nine cases out of ten the patient got only half the dose intended. At present I find the best and most economic way to give it is to pour boiling water or milk on to the dose, and to allow this to cool sufficiently to render it drinkable. The powder dissolves, and has not time to separate out before

it is taken. It may be administered in whisky punch, but I found this method not only expensive but also that the action of the drug was delayed to an appreciable extent.

Its effects must be carefully watched, as its action on the system is sometimes very marked and severe. It has a tendency to accumulate and cause a state of drowsy, stupid drunkenness, going on to collapse with a weak fluttering pulse, vomiting, and paralysis.

An even worse condition is sometimes to be feared—viz., the occurrence of hæmatoporphyrin in the urine.

In my experience of mental work two such cases have come under my notice. In both the condition of the urine was the first thing that drew my attention. It was normal in quantity, reaction, and specific gravity, but its colour was of a deep purple. Examined for blood, it gave a negative result, and, on consulting the books, I came to the conclusion that my patient was suffering from hæmatoporphyrin urea. Her condition was very grave. She looked very ill, vomited almost continuously, and became very exhausted. The pulse was weak and running, and, despite of all I could do, she gradually sank into a state of coma, ending in death.

In the second case, also a female, profiting by experience, I instantly stopped the drug, washed out the stomach, and administered stimulants both by the mouth and hypodermically, the result, fortunately, being recovery.

These two cases have made me ever watchful of the drug. It has a marked deleterious effect on the action of the heart, and the pulse should be carefully watched. It upsets the digestive functions to a great degree, giving rise to loss of appetite, anæmia, and frequent troublesome vomiting. It is advisable in all cases treated by sulphonal to give a saline purge frequently, thus preventing accumulation and consequent irritation.

Sulphonal is a drug which is very largely used in asylum work, but it should be used with very great discretion. It does not do to say, "Oh, give her a sulphonal powder," in treating every patient who is noisy and troublesome. Try every other means of calming the patient before resorting to its use, and if, in the end,

compelled to do so be very watchful of its effects, and above all do not push it too far.

At the present, of over five hundred patients under my immediate charge, I have only half a dozen who require it more or less habitually, and this number I am ever striving to reduce to a vanishing point.

Trional.—This is a comparatively recent addition to our list of general sedatives. It is a crystalline substance, closely allied to sulphonal in chemical composition. It labours under one of the disadvantages of sulphonal in that it is only sparingly soluble in water, and is, therefore, as difficult to administer. It is, moreover, a much more expensive drug, and is, in consequence, not much used in pauper asylums.

Dosage.—10 to 30 grs., best given in hot water, in which it is much more soluble than sulphonal.

It has many advantages over sulphonal. Its action is much quicker, the desired effect being produced in from 30 to 60 minutes. It has not the same pronounced accumulative action, and does not leave the unpleasant sequelæ of torpor, digestive disturbance, or heart symptoms. On the other hand, its effects pass off much more quickly, and the quantity of the drug used must, in consequence, be much greater.

Cannabis Indica.—Indian hemp is one of the principal ingredients in the many patent sedative preparations which flood the market at the present time. In asylums it is not used to any great extent. Of its preparations the extract and the tincture are the most frequently prescribed, and of the two the latter is to be preferred.

The class of patient most suitable for its exhibition is the senile dement, who requires continuous bed-treatment, is noisy, will not remain in bed, and resists all attempts at keeping him there. To such a 4-minim dose of the tincture on a lump of sugar as a rule has an excellent effect. It removes irritability and fractiousness in a most marvellous manner, and, while not acting as a hypnotic, keeps the patient quiet and manageable during the day.

The acute maniac will often benefit from the drug

when all else has failed. Given as the tincture in 30-min. doses, combined with 30 grs. of bromide of potassium, it works wonders, producing quiescence in a short time.

It produces no cardiac disturbance, and does not interfere with the appetite or digestive functions.

Each of the drugs of this class has its own particular effects, respective advantages and disadvantages, and experience alone can guide one as to which should be used in cases requiring a general sedative.

PART II.—PURE HYPNOTICS.

The most frequent and the most dangerous symptom in the early stages of insanity is sleeplessness, and this must in nearly every case be combated by the use of drugs. A word of warning, however. Frequently cases are admitted into asylums, the relatives of whom state, with the utmost persistence, that the patient has not slept for over a week. I have, however, found so many of such patients sleep soundly on the first night of admission that I rarely pay any attention to such statements, and allow the patient to go sleepless for three or four nights before administering an hypnotic, very often with the happy result of ten to twelve hours' sound sleep on possibly the second or third night.

This natural sleep I consider to be well worth the waiting for. Nature asserts herself, and the patient awakes refreshed in both body and mind. Subsequent treatment re-establishes the habit which was broken by mental trouble. However, it frequently happens that one has to have recourse to the pharmacopœial armamentarium.

Under the heading of pure hypnotics, paraldehyde takes the place of an easy first. Together with it I group such drugs as alcohol, veronal, and chloral.

Paraldehyde is a colourless liquid of peculiar odour and pungent taste. Its disadvantages are such that it is not used to any great extent in general practice. I refer to its disagreeable taste and smell. Being volatile, and excreted to a large extent by the lungs, the latter is perceptible for many hours after its administration, and the patient for whom it has been prescribed can with ease be

picked out of a crowd. This disadvantage is not of course so apparent in asylum practice, but its taste has its decided drawbacks. A patient will rarely take a second dose of paraldehyde by the mouth, and recourse has to be had to the tube either nasal or cesophageal.

I have tried to disguise its taste in syrups of high flavour—aromatic tinctures and wines—but always with the same result—refusal.

Dosage.—The pharmacopœial dose of paraldehyde is given as from 30 to 60 mins., but amongst the insane this has to be largely increased. It is a drug which exemplifies the rule that small doses excite a function, but large doses paralyse. Given in 1-drachm doses its effect is not unlike that of opium, which in small doses is a cerebral stimulant, but in large doses a hypnotic.

For this reason I never give less than two drachms as an initial dose, frequently going to four and six drachms, and in selected cases even one ounce. It is a cardiac stimulant, and does not seem to be followed by the depressing effects of alcohol. On the other hand, its effect is increased and its action hastened by being administered with equal parts of brandy or whisky. It seems strange that this should be so, but I have proved it in numbers of cases.

Paraldehyde, administered in such a manner, rarely fails to produce the desired effect within fifteen minutes, the result being a condition which stimulates natural sleep to a most satisfactory degree. The patient's slumber is dreamless and unbroken, and he wakes refreshed, with a mental condition which is much improved, and very often with an appetite for food which was previously lacking. Such are the advantages of paraldehyde, for which, as an hypnotic, I have discarded most of the drugs which are used as such.

Alcohol.—In the form of whisky or brandy alcohol is extremely useful among a class of patient which is unfortunately a large one. I refer to the senile dement, so advanced in years that they live entirely in the past. Under our existing lunacy laws they form far too large a portion of our asylum population. They are as a rule

noisy at night, irritable in temper, and difficult to keep in bed. Delusions of wealth and persecution, with sometimes hallucinations of hearing, render them suspicious to a degree, and, therefore, difficult to manage.

To such the administration of one ounce of whisky toddy almost invariably sends them off to sleep, and, with careful prevention of dozing during the daytime, the repetition of the dose can be easily limited to once a week, thereby keeping down expenditure.

Veronal.—This drug is a very recent addition to our list of hypnotics, and up to the present it has proved to be a good one, with, however, the one great disadvantage of expensiveness, which precludes its use in large quantities among our pauper lunatics.

It is in appearance a crystalline powder, tasteless, inodorous, and freely soluble in hot water.

Dosage.—As in most hypnotics, this requires regulation. It is well to commence with an initial dose of 10 to 12 grs., watching its effect, and increasing or diminishing the quantity as required. It is best given in about two ounces of as hot water as the patient can stand. It is well to wait two hours at least before repeating the dose, as its cumulative action is undoubted, and its slowness of action deceptive.

In some of our medical literature of recent date several writers have contributed words of warning in reference to the drug. In the *British Medical Journal* of Dec. 17th, 1904, I notice a case of more or less collapse into a comatose condition following the administration of three doses of 10 grs. each at intervals of one hour. In the same journal of a week's later date is recorded in one case a rash resembling urticaria following its use, and in another erythema with considerable local œdema and swelling, and leaving behind measly stains. In each of these cases the dose was only 10 grains.

Personally I have not, although using the drug rather freely for experimental purposes, had any ill effects, except perhaps some slight ataxy and inco-ordination of the muscles of the extremities. This quickly passed off on discontinuing the drug.

Veronal is of service in the sleeplessness which is one of the most prominent symptoms in the early stages of melancholia. Such cases benefit considerably from a dose of 10 to 12 grains given at bedtime. The result is a quiet sleep, similar in all respects to that of nature, and leaving no ill effects, such as headache, giddiness, or languor. On the contrary, the patient seems refreshed and invigorated to a degree not found in any other drug of the same nature.

In cases of mania the drug is practically useless, its slowness of action putting it out of court. Such cases indicate paraldehyde, which gives, as a rule, sleep in from five to ten minutes.

To sum up, veronal is a useful addition to the dispensary of a private asylum. Its action is fairly certain, if the case be carefully selected, and it has none of the drawbacks of paraldehyde, since it is pleasant to take, does not upset digestion, and leaves neither headache nor disagreeable sensations in the morning.

Chloral Hydrate.—A crystalline substance, soluble in equal parts of water, odourless, but of a sharp, pungent, burning taste.

Dosage.—15 to 20 grs., but, like most other hypnotics among the insane, it requires a much larger dose to produce the desired effect. Its disadvantages are: (1) its taste, which is best disguised by being dispensed with equal parts of liquid extract of liquorice (B. P.). 2. It has a marked tendency to inculcate a habit of craving, which shows itself in a lack of mental inhibition and a general lowering of the whole nervous system.

The class of case most suitable for its exhibition is the acute alcoholic, verging on delirium tremens. To such chloral hydrate, grs. 15, combined with an equal dose of one of the bromides, acts as a quick and powerful hypnotic, calming excitement, putting to flight distressing visual hallucinations, and producing sound sleep within a short period.

Epileptics are undoubtedly the most troublesome and dangerous class of patients in asylums. Irritable, quick-tempered, and magnifying every grievance to its utmost

extent, they are, as a rule, found to be the cause of every disturbance in a dormitory. Once roused, pacification is difficult, and they usually require an hypnotic. Chloral, prescribed as above and given by tube, gives the best results.

The danger of inducing a habit does not obtrude itself in either of these classes of patient, as its exhibition is not necessary in the same patient for any length of time.

In the status epilepticus, chloral is a sheet anchor. Given per rectum in double the ordinary doses it is an invaluable rest-giver and saviour of life.

PART III.—DIMINISHERS OF REFLEX IRRITABILITY.

The first and most largely used drugs of this class are the bromide salts of potassium, sodium, and ammonium, which may be either used separately or in combination, as experience of a case teaches one. I need not enter into a description of these, as they are too well known to require such.

In Part II., referring to chloral hydrate, I have stigmatised the epileptic as being the most troublesome class of patient in an asylum ward.

Epileptics are at all times (1) irritable and impetuous, (2) are generally full-blooded and plethoric, and are (3) remarkable for their eroticism and desire for sexual intercourse. The bromides, although their therapeutic action is obscure, undoubtedly act in a palliative manner towards each of these symptoms. They diminish the irritability of the cortex of the brain, they lower the capillary blood-pressure and diminish the sexual desire. It should be carefully kept in view that not only are epileptics subject to frequent recurring convulsive seizures, but they are also very often maniacal before or after such seizure, and, what is more dangerous still, an attack of acute homicidal mania may take the place of a fit.

Without the bromides to aid us I am sure that not only would our death-rate be much higher, but also many serious accidents would occur, and it is imperative to make use of them among our epileptic population, which is, as a rule, a fairly large one.

The bromides should be administered regularly, as the treatment must be continuous to do any good. It is astonishing to note the increase in the number of seizures when our stock of bromide has by an oversight become exhausted for any length of time. A refractory ward in which epileptics are generally located becomes a minor pandemonium. The nurses are busy from morning till night attending to patients having fits, and black eyes and cut heads become the order of the day.

Of the three salts mentioned above that of potassium is the one used in most asylums. It is freely soluble in cold water, and when in solution has a peculiar salty taste. It is at first disagreeable to take, but the patient quickly becomes so conscious of its effects in warding off his trouble that no difficulty is found in administering it. On the contrary, he grumbles if he does not get his medicine regularly.

Dosage.—The quantity required to saturate, but not to bromise, is the correct dose. This will vary in different cases, and must be found in each individual patient. From 20 to 30 grains given thrice daily after each meal will be the maximum. Bromism is easily induced in some cases, but the symptoms show themselves so unmistakably that one is warned in time. The dirty tongue and disordered digestion, accompanied by mental stupor and confusion, are sufficient to order one to say, "Hold, enough!" One unpleasant feature of long-continued dosing with bromide is the well-known rash which disfigures most epileptics. The routine treatment for such is arsenic. I find ℥iii. of the liquor arsenicalis, B. P., to the ℥xvi. of bromide mixture sufficient to keep it in check. This rash may seem a minor matter, but there is no patient who is more prone to the vice of vanity than the epileptic. He (the male is the worse offender in this respect) is deeply distressed when such a rash appears, and gives the medical officer no peace of mind until something is done to remove it.

A little essence of peppermint added to your stock bottle of bromide is always appreciated by patients, and helps to disguise the taste admirably:

Of the other salts those of sodium and ammonium deserve a passing mention. The therapeutic action of all three is entirely due to the molecule of bromine, as we have no evidence that any other salts of potassium or sodium produce such effects as I have described.

Bromides of sodium and ammonium contain a greater proportion of bromine to each molecule than the potassium salt does, each being in about the proportion of 17 to 20 per cent., but the effect of each salt in asylum practice is much the same. The combination of all three has been much advocated, but, having tried each salt alone and the various combinations, I have fallen back on bromide of potassium as giving me as good results with less trouble than all three together. It is also cheaper. To sum up, the advantages of the bromides are as follows:—

(1) The number of fits and their severity is considerably decreased.

(2) The patient is much more easily handled. You can get an epileptic to work well under the influence of bromide, but not without it.

(3) The bodily condition of each epileptic always improves under the drug, weight increases with moderate doses, the appetite is improved, and the temperature goes up appreciably. The temperature of an insane epileptic is, as a rule, between 97° and 98° on admission. After a week's course of K. Br. it is found that the normal temperature is reached. This I have verified in very many instances, and it is an interesting fact.

The second drug which I place in this class is opium, which is not so largely used among the insane as might be thought. The chief reason for this lies in the fact that the indications for its use are far from clear, and it is always necessary to experimentalise on each patient in order to find out whether it suits them or does not.

Opium may be used either as the whole drug or in the form of its alkaloids—in other words, by the mouth or hypodermically. Personally I have entirely fallen back on the use of opium in the form of the tincture, and that in large doses. I have before stated that opium in small doses excites, while large doses depress, and this fact is

at no time more apparent than in the treatment of the insane melancholic of a certain age and type.

In my last asylum, situated in the Highlands of Scotland, I found that the majority of my patients were of the melancholic type. This I accounted for, whether rightly or wrongly, by the natural temperament of the people of this part of the country. Dour, deeply religious, and leading a life of hardship and privation, they came into the asylum in the proportion of two labelled melancholia to one of mania, or simple delusion. The total number of patients numbered roughly six hundred, and thus I had a large field for experiment.

Amongst them I found all types of the disease—passively resistant, silent, and noisy. After careful classification of patients and careful graduation of dosage I have arrived at the conclusion that only one type of melancholia derives any benefit from the exhibition of opium. It is towards the patient who, male or female, has passed the climacteric, and is, moreover, atheromatous prematurely, that opium acts most beneficially. Such patients are morbidly depressed, are restless, noisy to a degree in the expression of their misery, and frequently have active delusions of a distressing nature. They look miserable, wander up and down a ward wringing their hands, moaning and wailing at the top of their voices, and, in consequence, becoming a nuisance and intolerable to those associated with them. On physical examination of such patients I always found a pulse of high tension, with arteries thickened, elongated and tortuous, accompanied by an accentuated aortic second sound. From these signs I argued that the cerebral arteries were in a similar state, producing in the patient possibly cerebral degeneration, if not, at all events, irritation and consequent restlessness.

Opium is undoubtedly indicated in such cases. Its effects in large doses are a peripheral vascular dilatation, causing the capillaries of the surface of the body to become congested with the occurrence of a sense of warmth and sometimes profuse perspiration. There is at the same time a general lowering of the blood pressure. I have at the present time two such patients under my

care, who have benefited to a marked degree by a course of opium. They are interesting cases.

The first, a male, aged sixty years, a fine muscular and well-developed Irishman. He was on admission in a state of pronounced morbid depression. He looked wretched, could not remain at rest either by night or by day, and said he was the most miserable man that ever lived. He rarely spoke, and, having attempted his life shortly before, he was kept under careful observation. Curiously enough, he tried to commit suicide by taking an overdose of laudanum. He was atheromatous to a marked degree. I put him on tinct. opii $\bar{\text{v}}$ ii to start, gradually increasing the dose minim by minim until he got $\bar{\text{v}}$ iv. in the twenty-four hours. This large dose he got daily for about a week with no ill effects, and then I gradually diminished the dose, as his condition improved to such an extent that he was able to do without the drug for long periods. He is now cheerful and bright, and takes an intelligent interest in himself and his surroundings. He has lost his delusions, and is a good worker in our garden. He is at intervals restless at night, but a small dose of opium once a fortnight sets him right.

The second case is a female, aged fifty-five years. She was a second admission, having relapsed about three months after her discharge, and was returned to the asylum as being a public nuisance.

She was a melancholic of the noisy type. She appeared to be absolutely miserable, sat in a chair rocking herself to and fro, and giving expression to her grief in no uncertain tone. She wailed from morning till night at the pitch of her voice, ceasing only at meal time. She could give no reason why she acted in this manner, and could conduct a conversation in a rational manner, being quite coherent, and expressing no delusions. She I found to be atheromatous and suffering from aortic valvular disease.

I adopted a similar course of treatment in her case with most beneficial results. She at the present time gets $\bar{\text{v}}$ vi. of tinct. opii about once a week, and is now a most useful patient in the asylum ward.

In both of these cases, although giving excessively large doses, I have not noticed any of the unpleasant effects usually seen. The appetite continued good, constipation was absent, and the general nutrition of the body did not suffer in the least, as was evidenced by the weekly weight report.

Whenever I have had recourse to the drug I have almost invariably preferred to administer opium as such than any of its alkaloids. The hypodermic syringe is, of course, a great advantage in treating an insane patient, giving as it does such great precision in the dosage. Nevertheless, the effects which I have wished to produce are the better obtained by the use of opium. It has a more pronounced effect on the capillaries of the body, and is, therefore, a better diaphoretic, it is more stimulating, and, above all, it acts more *evenly* in soothing the nervous system than morphin. For this last effect I particularly prefer opium.

I have up to the present been speaking of opium as used alone, and not in combination with any other drug. There is, however, a class among the insane who at certain periods require to be kept continually under the influence of a sedative. I refer to cases of recurrent mania, whose periods of excitement are as regular as the changes of the moon. They are not, I am glad to say, a very numerous class, so much so that I am always able to say, out of my five hundred patients, when each individual one of this type is due for an attack. When it does occur it is characterised by intense excitement and exaltation, an absolute disregard of personal injury, and frequently destructiveness of a most expressive kind. The attack often comes on suddenly and without warning of any kind.

For such patients I keep in my poison cupboard a stock mixture of the following:—

R. Liq. Morph. Mur.	-	-	min. 20
Chloral Hydrat.	-	-	grs. 20
Spt. Chloroformi	-	-	min. 10
Tinct. Card. Co.	-	-	min. 20
Aquæ ad	-	-	℥ss.

The attack lasts, as a rule, from four to five days, during which I give the above dose thrice daily after food, with the most beneficial results. The attack itself is cut short, the excitement lessened to a marked degree, the patient is less dangerous to himself and others, and is easily controlled.

In conclusion I may point out that, in common with all sedatives, it is of the greatest importance to watch carefully the effects of each increasing dose of opium, and above all, for obvious reasons, to make a careful examination of the urine of the patient both before and during the administration of the drug.

PART IV.—MOTOR DEPRESSANTS.

The drugs of this class of which I have had practical experience, and which are used in asylum treatment, number only two. They are in reality one and the same, each being derived from the same plant, *Hyoscyamus Niger*. The effects of the tincture of hyoscyamus and that of the alkaloid hyoscine are, however, so widely different, and the class of patient for which each is indicated is, comparatively speaking, so far apart, that they must be treated individually and not collectively.

Hyoscine.—It is in the use of this drug that the advantage of the hypodermic syringe is so apparent. Rapidity of administration is absolutely necessary in the cases that require hyoscine. The sudden and acute case of mania characterised by delirious excitement, violence to himself and others, noisiness, destructiveness, and motor impulsiveness of all kinds demands active treatment, and this is best carried out by the use of hypodermic injections of hyoscine. Such patients soon become exhausted to a dangerous degree from the intensity of their excitement, and the case quickly resolves itself into one of emergency, and the sooner this is recognised the better for the safety of the patient's life.

Dosage.—It is the safest course to follow the pharmacopœial dose—viz., 1-200 gr.—if the patient should be at all weakly, as marked idiosyncrasy is very common, and the effects of the drug are such that extreme caution should

be exercised in its use. Sudden heart failure is always to be feared after its administration, and although I often use it with benefit, yet I must honestly confess that I always do so with fear and trembling.

My first experience of hyoscine has made me very cautious. Previous to taking up asylum work I was resident in an accident hospital. I was called at 1 a.m. to admit a case of delirium tremens. The patient was a man of fifty years, strong, muscular, and full blooded—a coal-heaver by trade. He was in a condition of acute maniacal excitement, shouting, throwing himself violently about, and the subject of hallucinations of sight, which at intervals seemed to throw him into a state of terror, indescribable. He was, with the assistance of a couple of hall porters, given a hot bath, put to bed, and given a pint of hot milk by the tube. This treatment calmed him for an hour or two, after which he became absolutely unmanageable. Not caring, as a junior, to resort to drastic treatment, I telephoned for the senior resident house physician. On his arrival the patient was strapped down by bandages carefully applied to knee, ankle, and elbow joints, but even with this his muscular efforts were so intense that something further had to be done. I suggested 1-100 gr. hyoscine hydrochloride hypodermically, which, after a little demur, my senior administered. The effect was quickly apparent. The patient quieted down within fifteen minutes and fell asleep. All being well—as we thought—we retired to bed, but within the hour I was again summoned by an urgent message from the night nurse to say the patient was dying. I hurriedly got to the ward, and realising what had happened took my hypodermic case with me. I found the man in a state of collapse, sweating profusely, respiration almost suspended, and the pulse imperceptible at the wrist. I at once administered 1-32 gr. of strychnin hypodermically, ordered hot bottles to feet and sides, and commenced artificial respiration. This I continued for an hour, but the patient never regained consciousness, and died. This, my first experience of hyoscine, taught me a lesson never forgotten. I have no doubt that in this man, after his

long bout of drinking, followed by exhausting maniacal excitement, the vaso-motor system was very depressed, and the dose of hyoscine, which I now consider to be excessive, over-stimulated the heart's action, producing failure. Probably inhibitory action of the vagi was produced at the same time.

In my asylum work whenever I use hyoscine, which is not infrequently, I generally start with 1-200 gr., but have given as large a dose as 1-80 gr. with good results. It acts as a decided soporific and calmer of delirious excitement to a marked degree. Its after-effects are practically nil if due precautions are taken. The patient's heart should be carefully examined, and if any organic mischief is found on no account should the drug be used. General paralytics and cases of organic brain disease contra-indicate its use.

Tincture of Hyoscyamus.—This is a form of the drug which I very frequently use in combination with other sedatives, such as the bromides or chloral, and it is certainly most effective. Cases of what I call moral insanity are kept under control by its use. They are always of the female sex, and who have been sent to an asylum by their friends as being unmanageable at home. Their insanity consists of impulsive outbursts of temper and self-will, a rooted objection to doing what they are told, and if remonstrated with in the slightest way they proceed to prove their right to certification by smashing, tearing their clothing, bed-clothes, and even setting fire to anything they can lay their hands on. (This last symptom of pyromania is not uncommon.) Whilst showing all these symptoms they can converse in a most rational manner, and have a due perception of right and wrong. Their condition is entirely due to their up-bringing and the lack of a firm hand in youth. At the same time there is generally found a neurotic strain in the family history.

Such patients, when found to be getting out of hand and kicking against the rigid discipline of asylum life, are benefited considerably by a short course of hyoscyamus. The menstrual period is generally the time when they are at their worst, and I find a drachm or two

drachms of the tincture, shortly before bedtime, has a wonderful effect. Not that it acts as a sleep producer, but it helps to bring them over a troublesome period without undue excitement, and, further, has a marked depressing influence on the motor centres of the brain. Given in combination as a mixture for cases which require it more or less continuously I prescribe the following:—

R. Tinct. Hyoseyami	-	-	min. 30
Chloral Hydrat.	-	-	gr. 20
Sodii Bromid.	-	-	gr. 10
Syrupi Simplicis	-	-	3i.
Aquæ ad	-	-	℥ss.

This given thrice daily I find quite sufficient to transform a termagant into a useful and obliging patient.

CONCLUSION.

In writing this thesis I have entirely confined myself to the therapeutic use of sedatives and narcotics, not caring, from the immensity of the subject, to touch on such influences as manual labour, walking exercise, hydrotherapy, or hypnotism. No one who comes into contact with the insane can over-estimate the value of such, but even with such factors one has always, as I have before pointed out, to resort to the use of drugs at some time or other.

Exception may be taken to the number of drugs I have treated of as being too few, but it is my belief that no more are required in any asylum, however large, and even if this list was reduced to an even smaller limit it would be far more satisfactory in every way.

In closing I would lay down a few maxims which I have learnt from experience:—

- (1) Give particular care and forethought as to what class of drug is indicated in each case.
- (2) Having given your drug, watch its effects carefully and graduate your dose accordingly.
- (3) Make frequent examinations into the physical condition of each patient under the influence of a drug, paying particular attention to the ratio between waste and repair, as shown by your weight book.

(4) Never use a pure hypnotic in the daytime.

(5) In cases of insomnia due to delusions of a visceral nature be always on the look-out for disease of the organ said by the patient to be the cause of the trouble.

(6) If at all possible, try to do without the use of drugs, as they all have, without exception, a deleterious effect on the tissues of the body.

ART. XI.—*Fracture of the Tibia.*^a By EDWARD H. BENNETT, M.D., F.R.C.S.I.; Surgeon to Sir Patrick Dun's Hospital; Professor of Surgery in the University of Dublin, &c.

I DESIRE to submit to the Surgical Section of the Academy an example of fracture of the tibia only, which is most exceptional in its character.

"It is" (writes Stimson) "quite rare for the tibia alone to be broken when the fracture is by indirect violence, for the force continues to act, if only for a moment, and breaks the weaker fibula all the more easily, and usually at a higher point than the tibia." Every collection of fractures of the leg bones contains examples of fracture of the tibial shaft remote from its articular extremities, in which the tibia alone has been broken by direct injury, and every surgeon has seen examples of these in practice. If the fractures are simple none are more favourable for surgical treatment, for they remain without displacement and unite without deformity. But oblique fractures of the central portion of the shaft, without accompanying fractures of the fibula, are, indeed, rare. The following case came under my care this winter, and I am able to place all the facts before the meeting in excellent skiagraphs by my colleague, Dr. Watson. I was obliged to get a picture of the skeleton of the entire leg, as some one might say that I had overlooked the possibility of a fracture of the fibula either very high up or very low down. With the picture of all the leg this idea is excluded.

^a Read before the Section of Surgery in the Royal Academy of Medicine in Ireland on Friday, February 24, 1905.