manner with a most excellent result. He finally left the hospital in good health, except for the fact that the bacillus could still be cultivated from his urine.

I have now treated in hospital and privately 12 of these very acute cases, in most instances with satisfactory results. On five occasions, the effects of the serum were rapid and permanent, the patients never showing any return of the symptoms so far as I am aware. In four cases considerable benefit ensued, while in two instances the improvement was so slight as to be disregarded; in one case which was much less acute than the others, it seems probable that the joint pains and rashes, which resulted from the action of the horse serum, were almost worse than the disease itself. There is little doubt that some people do possess an idiosyncrasy for horse serum, and in such cases this method of treatment is undesirable. Unfortunately, until the serum is injected, it is impossible to recognise this condition. Calcium lactate in doses of 20 grains, three times daily, should be given at the time of injecting the serum. This drug appears in many instances to diminish the objectionable effects produced by the serum. It may also prove useful if employed at the time when these complications arise.

In the subacute cases serum treatment is decidedly useful, although much less so than in the severe type of the disease. In chronic cases it so occasionally does good that it may be regarded as a coincidence; usually it proves to be absolutely useless. There is not the slightest doubt that the use of this serum in all acute cases, and to a less extent in the subacute cases, is extremely valuable. From experience it seems best to give 25 cubic centimetres of the serum each day for three days.¹⁴ If no effect is produced by this method of treatment it should be abandoned. It is most improbable that if the injection is repeated some few days later any benefit will ensue, while undesirable complications might occur owing to the supersensitisation of the individual by horse serum.

The vaccine treatment.—This method of treatment is now becoming widely employed mainly owing to the investigations by Sir Almroth Wright. Everyone who is acquainted with the extraordinarily successful results obtained in chronic staphylococcal infections by vaccines cannot fail to appreciate them. Unfortunately, the cases due to the bacillus coli do not give as satisfactory results as are obtained in the case of staphylococcus aureus and albus. I have now treated a large number of patients suffering from infection of the urinary tract due to this bacillus, but I am unable to record any material improvement except in a few instances. It is true that the patients often felt much better in themselves, but I have disregarded observations on this point if the urine has remained in much the same condition after treatment as before. Still further considerable improvement in the patient's resistance, as estimated by the "opsonic index," cannot be of much satisfaction either to the patient or the medical adviser, if the condition of the urine remains unsatisfactory. Unfortunately chronic cases not only show a great tendency to relapse, but the relapse often occurs with extraordinary rapidity. A chronic case has received vaccine treatment, the "opsonic index" has steadily risen up to five, six, or more, general improvement has taken place, and the urine has become quite clear; very soon a relapse occurs, and the condition is much the same as before. This is an important fact to remember, because it appears that cases in which a cure was considered to have been effected may pass into other hands with the urine turbid with colon bacilli. As previously stated, the relapse may occur with extraordinary rapidity. I have seen a case under treatment in which the urine had become quite clear and in which no bacilli could be found even after centrifugalisation, but on the addition of large quantities of the urine to culture media a growth was obtained of the bacillus coli. After an interval of 24 hours it became turbid as before.

The most difficult question which we have to decide is, Who is to be treated by vaccine and who is to be left to

nature's efforts? It might be urged that all cases of bacilluria, and especially those with inflammatory changes in the urinary tract due to the bacillus coli, should receive vaccine treatment. Whether this is the correct view it is open to question. It is quite certain that every chronic case is liable to acute attacks, which are often of the greatest severity, and this fact should influence one in recommending treatment in cases of this infection. On the other hand, there are very many chronic cases who never have had any definite symptoms necessitating medical treatment, although the urine has been known to be turbid for a considerable time, and also there are many people whose urine is infected by this organism quite unknown either to themselves or to their medical advisers. There is, therefore, considerable difficulty in settling this question.

In conclusion, if a definite line of treatment is decided upon in chronic infections of the urinary tract due to the bacillus coli, the vaccine treatment should be adopted, employing the organism isolated from the patient's urine.

I am greatly indebted to many people for much valuable help concerning the clinical side of this investigation; to Dr. J. S. Fairbairn for certain data referring to the obstetric cases; to Dr. Dale for the supplies of horse serum; and to Dr. E. A. Ross, Dr. M. A. Cassidy, and Dr. W. O. Meek, co-workers in my laboratories, for much valuable assistance often asked for and freely given.

THE RADICAL CURE: CERTIFICATION OF INEBRIATES.¹

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THERE must be many of us among this audience to whom the question of dealing with chronic inebriates, more particularly among the upper and middle classes, is one of paramount anxiety and irritation, because we recognise that the law, which is the instrument of the social system for its own protection and security, seems strangely impotent as a weapon against the cankerous pest of inebriety which rises with the sap and permeates the ultimate ramifications of the family life. There must be some reason for this supineness. How long are we to allow the chronic inebriate to bully his compeers, to ridicule the efforts made to reclaim him, to chuckle as he regards the abyss of despair and want into which his unassailable self-indulgence and extravagance have hurled his dependants, knowing, as he only too well does, that we are afraid of him; that being unable to shackle we can do little more than request him to handcuff himself and to ask him graciously to bring about his own sequestration for as long or as short a time as he condescendingly pleases.

Is it that there is a misplaced sympathy with this chartered abuser of the tavern or the club or that there is a maudlin sentiment about the right of the individual to self-indulgence if he chooses to spend his time and his means in his own way? Is it that there are invincible obstacles in the way of dealing with the temporary retrenchment of his liberty because of the general truth that the condition may be often one of short duration and that it is unfair to impose a certificate of unfitness, to place so powerful an instrument for enforced seclusion in the hands of people who have already some measure of legal rectification to resort to if they like to employ it? It may be that the difficulties in the way of determining the degree of inebriety that justifies the temporary or even permanent putting away of the individual are so subtle and so dependent on the idiosyncrasies and the personal equation of the friends and the medical advisers that the arguments for the adoption of so compulsory a procedure are not yet sufficiently cogent for the sanction of the law to statutes of so drastic a nature. To the medical mind it does seem that when a member of the community acts in such a way that he is made incapable of doing his work and providing for his family; when he is led into squandering his money, into using threats, bad language, and even violence against his nearest relatives; and when this behaviour is clearly due to inability to avoid, or reasonably to limit himself to, alcohol—it seems, I say, that such a person is a source of

¹⁴ Dr. T. Henderson Smith has published the result of some extremely interesting investigations on the absorption of antibodies from the subcutaneous tissues and peritoneal cavity. The conclusions which he arrived at from these experiments are as follows. 1. By intravenous injection the maximum amount of action is obtained at once. 2. Clinically, in urgent cases of disease to inject antibodies subcutaneously is not only to lose 2-3 days' time before the full action can be obtained, but to reduce the amount of action that the dose injected can have. 3. The amount of antibody present at any one time in the general circulation after intraperitoneal or subcutaneous injection is very much less than the amount injected (*Journal of Hygiene*, April, 1907, vol. vii.)

¹ A paper read before the Medico-Legal Society on Dec. 17th, 1907.

danger to himself and others, and as such is a proper subject for elimination. To the lawyer, no less, must be a fit person for arrest in his runaway career the man who ignores the guiding posts which the law in its experience has placed to point out the straight path. To the lawyer it must be humiliating to feel his ineptitude in the face of the wanton dereliction of social obligations, the brazen turpitude of the man or woman who can revel unmolested in this besotted degradation, regardless alike of the moral, spiritual, and physical coordinates of regulated conduct.

Surely, then, an obligation lies on this combination of order and science, the Medico-Legal Society, to take a leading part in the measures to which from many parts the call arises, for the stoppage of the banal insolence of the incorrigible inebriate, or for the arrest of the incompetent pretender who is wrecking the foundations of order in the class to which he owes allegiance. I confess to the hope that we may receive encouragement in a forward and repressive policy from the legal and universal experience of his lordship, Mr. Justice Walton, who is presiding; for we all recognise that the acumen and perspicacity which distinguish his judgments will, if they are kindly vouchsafed to us in this direction, be received as an *obiter dictum* of the greatest value in helping forward what I take to be one of the most important duties which we owe to those who are down-trodden and not infrequently brought to the verge of ruin by people who, if at times they may be brought under the ægis of disease, are, on the other hand, little less than criminal. Before speaking of the ultimate measures which we ought to be able to employ when others fail I beg permission to place before this society a few points which we should do well to bear in mind, because I am not of those who hold that the way to prevent inebriety is to close all public-houses and to preach the doctrine of enforced total abstinence for everyone—on the one hand to exterminate a legitimate and useful trade, and on the other to bolster up the fad of an over-zealous minority. Governments which derive large profits from the sale of alcohol in one form or another, social systems which both in their public and private hospitality deem no gathering justifiable unless there is a prodigal display of fermented liquor, religious bodies which quote Divine authority for the permission to use vinous stimulants, doctors of medicine who publicly avow their belief in the advantage if not the necessity of limited amounts of drink—all these cannot but have rather tender consciences towards the people who from small and legitimate beginnings have grown, under the pretence of authority, to harmful excess. For it must not be forgotten that though water is the least taxed of foods it is not after all a quick food, and there are occasions when a quick food is required. Some emotional states are accompanied by (are the cause of) rapid exhaustion, only to be met by a rapid restorative. But a restorative becomes an excitant when its simply restorative function is over; from this point of view alcohol is the balancing-pole which may, if wrongly or ignorantly used, become a source of danger. The old question, "Is alcohol a food?" may be answered in a qualified affirmative. It is ingested and decomposed to some degree; in so far it is a food, but when its ingestion is excessive it becomes a poison. Each person, therefore, is the arbiter of his proper quantity of alcohol; there are days when he may require some, there are others when he ought not to have it.

It is a known fact that nerve display and the coruscations of fancy flow more easily after use and exercise have made the paths, whilst the beginning may be tedious and is often painful. Alcohol accelerates the starting, but it may set up movement too fast for the strain-point of the material, so that both for starting under pressure and for whipping-up flagging energy the use of alcohol may be excessive. To be able to undertake suddenly, to support strain, to continue to carry on exhausting processes connote both health and strength, but it is only the strong and the mature who are in this enviable state, and that too for a limited time. People have to work and expend energy when their organs are not fit for it, and it is the fault of civilisation, of competition, that stimulation leading to excess is set up, such a result being unnatural to strong and healthy conditions. And this is true not only of alcoholic but of other habits; there are few who do not have to indulge sexually in excess of what they really wish; few who are not compelled to work when really disinclined, summed up in the phrase that it is often the necessity of living that kills. All organs have not always a coördinated power of resistance, for do we not

often notice how a poor muscular system has to be flogged (by alcohol) to keep up with a pace-making brain, or how a weak brain may have to be stimulated under muscular stress. Please observe that I am for the moment holding a brief for the inebriate by endeavouring to show that, however deplorable the ultimate condition both to the victim and to his family, there are some extenuating circumstances due to him which possibly explain the reluctance and delay in taking extreme measures. Society is a hard whipper-in and in its strenuous efforts to keep the pack together it harries the halt and the feeble, unduly taxed to keep up with the younger spirits who have no sympathy with the lagging members, and it is oftener than not that from the ranks of these willing but wearied members are recruited the brigade whose treatment we are to discuss to-night.

I am very sorry for the people who are said to "do nothing," to be "of no occupation," prematurely ejected like a spent cartridge and sent to rot whilst the case is still sound and only requires recharging. There is too much new material; it does not pay to stop and pick up these *disjecta corporis membra*. "Let them rot," says Society, "it is the penalty of evolution and production!" As a fact, these "do nothings" often do a great deal but it is in an uncongenial direction; they are "unemployed" and so they fret and grizzle at their enforced idleness or else they eke out their time by easy vices, gambling, drinking, tedium-drowning, pleasure-making, and other arduous methods, backing up their social ostracism by a headlong flight towards extinction. And all that Society does is to nod approvingly and murmur, "Why try to preserve them? Let them drink and die. What are they to us!"

There is no getting away from the tyranny of social functions. See, for instance, how people at public dinners or private entertainments take more to drink than they do when they dine quietly at home. Why? Partly because it is pleasant and they get a good and expensive thing at another's cost—illustrating the remark of Sidney Smith that the wine he liked best and drank most of was "other people's"; but often because they are under the stress of having to make speeches and have to nerve themselves to be brilliant, whilst those who have to assist at the function by listening while away the time by extra libations. If only people would recognise that brevity is not only the soul of wit but also of temperance, there would be a reasonable prospect of success for those who argue against the deadly accompaniments of post-prandial oratory. Above all, what stands in the way of wholesome and (in moderation) harmless drink is the expense of it. About 100 per cent. profit is the price paid by the consumer who lives at a hotel. The duty on wine is the great bar to its consumption, driving men to a cheaper, more adulterated, and more potent beverage. The same holds with tobacco; everywhere taxation leads to adulteration.

The reasons why the inveterate inebriate has been allowed so long to exist are, then, perhaps because society feels itself to some extent culpable for condoning facility for the condition so easily acquired, and is loth to adopt measures which may savour of what the public call the "stigma of insanity." And yet this excessive drinking is now recognised to be due to disease in many instances, and by none is it more readily recognised as a condition due primarily to degeneration than by those who are most familiar with the inmates of homes for the inebriate. (See Dr. Branthwaite's Norman Kerr lecture before the Society for the Study of Inebriety.)

There are many people now under *lunacy certificates* whose cause of insanity is drink, but there are many cases where, though excessive drinking is the cause, we hesitate to use a power which we undoubtedly possess because the condition is a transient one and because the law is on the side of the patient when once the symptoms have disappeared, which they soon do. Such are cases of delirium tremens, and of acute alcoholic mania or melancholia, when not too intense in symptomatology, where there is probability of short duration, and where the means of treatment at home are adequate. There are, again, cases of chronic alcoholic insanity characterised by delusions of persecution, perhaps dangerous to themselves and certainly so to others, who are only fit for an asylum and who are very properly sent there. It is not for this class that we are in such urgent need of fresh powers. Our interference is required for persons who drink to excess—perhaps constantly, perhaps intermittently—who though rarely drunk in the sense that they are absolutely incapacitated are yet unable adequately to discharge their

obligations, who squander the money which should be for the family in racing, betting, and gambling, who pass much of their time in bed when they should be following their business, and who through absence of definite delusions or hallucinations cannot be certified as insane, who are ready to give promises of reformation which they do not keep but who are always on *dangerous ground*, on the vortex of doing something which renders them liable to penal offences, though quite able to give plausible accounts of their conduct and to sustain a certain amount of conversation on their actions. This is the condition where we want the law to help us, not so much perhaps for the sake of the agent as for those who are being slowly submerged and threatened with total extinction by a continuous current of banal excess which should be dammed-up or diverted. Why should this destructive, grinding, and oppressive creature be allowed to desolate his home, to endanger the good name of his wife and children, and to pauperise his dependents who ought to have the means of stopping the destruction which they can see is gradually overtaking them?

It seems at present as if the law takes no notice of acts unless they *actually cause harm* to self or others, not of continued evil practices which may do harm. Thus there is apparently nothing to prevent an inebriate acquiring a licence to carry firearms and buying a revolver as long as he does not threaten to use it or actually does use it—only when he actually *has* used it does he come within the clutch of the law, though all the time he is in such a condition that the impulse to use it may arise at any moment and the mischief be done before it can be prevented. Is such a possibility right either for the man himself or for society in general? A man may buy absurd and rotten stock as the dupe of people who take advantage of his condition, but the law does not come in until he is a bankrupt. A man may drink to the greatest excess, but if it is in his own house or his club or in a hotel no notice need be taken of it as long as he does not commit a breach of the peace or cause an obstruction and is not disorderly.

[Dr. Claye Shaw here gave some illustrative cases. He proceeded:—]

Now I come to the legal processes which I submit should be invoked, though I do not profess that they are complete in all detail; they, however, indicate the principle on which action should be taken and I commend them with confidence to your criticism.

Recognising that there are already many who owing to the acuteness of their alcoholic insanity have to be placed in asylums, where, however, they rapidly recover, and from which they have to be discharged, I would have the committee and the medical superintendent endowed with the power to discharge them for a term of probation, to be extended as long as deemed necessary, to an inebriate home. As they have recovered from their insanity it seems of doubtful advantage to detain them in the society of insane people and they should be changed to conditions less stringent and painful, there to undergo a buffer treatment which would gradually accustom them to take on again responsible duties. Of course, they would be released from the asylum on certificates giving to the authorities of the home the power of detention and treatment during the prescribed time. At present we know that patients may be discharged from public or private asylums on probation to their friends but the binding influence is not so coercive as if they were submitted to an annealing process, with the knowledge that they are still under government and ordered routine and that their ultimate liberty is dependent on the return to the power of inhibition.

In cases similar to those I have described it should be possible to place the patient in a home for inebriates upon the authority of two medical certificates, somewhat similar in form to lunacy certificates but free from certain objectionable phrases which exist in the latter. These certificates should be available for at least six months and should be capable of renewal for additional terms of six months if considered advisable by the authorities of the home and by the medical men who signed them; whilst under these certificates the patient would be allowed to transact such acts of business as he was deemed capable of by the home authorities and their superintendent, but special permission would have to be given for these acts of responsibility, and during the time of his detention personal liberty would be denied him except by special order of the superintendent.

I have considered the advisability of having the name of

his wife or next-of-kin brought into the forms of certification and have concluded that it is necessary. It would perhaps be better for the future family harmony if the immediate members could be kept clear of unpleasant participation in the detention of the head of the house, who, especially when the liquor was out of him, would fret and fume at not being able to return, and would perhaps harbour hostile feelings against those who are keeping him in detention after his mind has become reinstated; but on the whole it is probably only right that their friends must undertake some risk, and therefore it may be concluded that some authorisation from a near relative must accompany the certificates either as a separate document or conjointly with the certifying doctor's. There would probably be less difficulty in getting the husband to send away the inebriate wife than in the converse process.

The necessity of having the order of a magistrate is a debatable point. The experience of certification in lunacy cases is not entirely in favour of the order of a magistrate. In urgency cases it is not in the first instance required, and it not infrequently happens that the magistrate, who from circumstances is not able to see the propriety of certification in the same light as the medical man, refuses to give his order, with the result that either the certificate cannot be obtained or else the patient has to be liberated, a proceeding which has before now led to disastrous results. If the order of the magistrate were nothing more than a formal official cachet that a certain process had been complied with there would appear to be no reason, beyond the question of delay, why it should not be made compulsory; but if it is to involve discretionary power then the harm or the uselessness of it is apparent because the arbiter is not always in a position to adjudge the validity of the premisses. On the whole we may be disposed to conclude that recourse to the order of the magistrate may be had as a testimony of an official nature that the process is formal. The form of certificate would be on the following lines:—

I, _____, being a registered and qualified medical man, hereby declare that I have visited and examined _____, a _____ residing at _____, and that I am satisfied that the said _____ is an inebriate and is unable to control himself and to manage his affairs.

I accordingly recommend that he be detained in the home for inebriates at _____ for a period of _____ calendar months, at the end of which time this certificate may be, if necessary, renewed for another period of _____ months, or for such longer time as is considered by the authorities of the home and the friends of the patient to be advisable.

Signed _____

I agree to the above certificate being issued

with reference to _____

Signed _____

It may be said that such a certificate is of too drastic a nature, that it gives too easily the power of secluding persons who are merely troublesome, and whose faults should either be tolerated or treated in milder ways; but it must be remembered that the state of things to be remedied is a serious one, that it is a dangerous one to the integrity of the individual and to the welfare of his family, that it is apparently the only way in which the individual can be taught the conditions of his enjoyment of liberty and of the cure of his bad habits. The patient thus compulsorily secluded ought to have safeguards, whilst under detention he would be visited by the Government inspectors, and he would have his legal remedies for improper certification just as the lunatic now has.

I am aware, of course, that in the case of criminals (who are often imbecile or degenerate) the duress of prison treatment is of no avail, that on release they repeat acts which again bring them under the ban of the law, but the object of the present scheme is to prevent persons (who, it is granted, are often the victims of disease or of degeneracy) from coming within the penal terrors of the law, of giving them the opportunity under favourable conditions of a rehabilitation by medical and moral means.

To carry out with all due safeguards the measures above proposed may be, I am aware, asking the country to undertake the fresh burden of possible increase in the number of certified inebriate homes and additional machinery for their efficient supervision, but what is incurred in one way may be saved in another by reducing the instances in which private charity and the public funds have to be requisitioned. Knowing, as we do, the amount of crime, of distress, of broken-up homes, of cruelty engendered by chronic alcoholism, are we doing our duty to the helpless victims of the extravagances of the persistent inebriate in allowing the authors of these evils to flaunt their immunity in our faces whilst we listen to the woes of the sufferers with helpless indifference?

I apologise for the imperfection of details in the plea, but it seems to me to be a great opportunity for this society to initiate or to assist in promoting legislation for the removal of this social stain, or if unable to give the time for formulating a distinct plan of attack at any rate to give its support to other associations which are working in the same direction. So long as people can have access to unlimited amounts of intoxicants we cannot hope for universal moderation, nor can legislation stop drunkenness, which is often as much a symptom of disease as delirium may be of a fever. We can teach people the necessity for moderation (and probably we have in this been to some extent successful), but alcohol is always a dangerous instrument, and we cannot be surprised if some who do not know how to use it as a servant find that it becomes a tyrannous master. Drunkenness is not the end for which alcohol is taken, but the social system which permits the insidious ensnarement of control, welling up finally to a paralysing incompetence for economic duties, should also provide the means for escape from the net, if even by temporary restraint of another kind, and it should resolve that the possession of such a power is not a futile asset.

Harley-street, W.

A CASE OF ACID INTOXICATION FOLLOWING THE ADMINISTRATION OF CHLOROFORM.

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CASES of "delayed chloroform poisoning" are probably of sufficient rarity to warrant the publication of the following brief notes.

The patient, a bright, well-developed, apparently healthy boy, aged three years and ten months, was admitted on Jan. 28th, 1908, suffering from phimosis. He was recently recovered from an attack of chicken-pox but showed no symptoms of renal complications. Circumcision was performed at 11 A.M. on the 29th. Two drachms of chloroform were given, the administration lasting about seven minutes. The anæsthetic was well taken. He slept after the anæsthetic but was fully roused during the course of the afternoon. He vomited at 5.30 P.M. after sips of hot water and several times after that until 8.30 P.M., the vomit so far being quite clear. At that time he was fully conscious and laughing and talking. He slept from 8.30 P.M. until 1 A.M. on the 30th, when attention was attracted by noisy respiration, with a marked rattle in the throat. The pulse now was rapid, of small volume, and feeble. The child could not be roused. The lungs were examined and found to be full of moist râles. He was given a medicine four-hourly containing liquor ammonii acetatis, ten minims; spiritus ætheris nitrosi, four minims; and vinum ipecacuanhæ, two minims. He continued to vomit on several occasions during the night, the vomit being of a dark green colour (bile) and smelling strongly of chloroform. He passed urine and the bowels were moved three times unconsciously during the night. His temperature did not rise above 99° F. during the night, but his pulse-rate was 120 and his respirations were 36 per minute. At 7.30 A.M. he was still unconscious, the pulse was weaker, but the respirations were less laboured. His condition improved slightly until 9 A.M., then he was pulseless, still vomiting occasionally. The lungs were again examined and found to be clear except for a few râles at the bases of the left lung. The abdomen was relaxed. All the reflexes were normal (extensor plantar reflex on both sides). The pupils were rather small but reacted normally to light. The tongue was moist but covered with a thick white fur. He still had incontinence of urine. At 10 A.M. the temperature had risen to 103°, the pulse could not be felt at the wrist, but the heart rate was over 200 per minute. He again vomited bile-stained fluid. He was ordered 30 minims of brandy by the mouth half-hourly and one-sixtieth of a grain of strychnine sulphate and five minims of ether hypodermically four-hourly. The administration of oxygen given warmed and in a continuous slow stream was commenced and continued until the end came. At 11.45 A.M. a slight general twitching was reported to have occurred twice. The pulse had improved again slightly, the pulse-rate now being 144; the temperature was 103° still. At 12.50 P.M. he vomited again. At 2 P.M., the temperature being still 103°,

he was tepid sponged, which reduced it to 101°; the pulse-rate was then 144. At 4 P.M. the smell of acetone was distinguishable in the breath and a catheter specimen of urine was obtained and sent to the Clinical Research Association for examination. The breathing remained fairly good until about 5 P.M. and then numerous râles were heard all over the chest. From 7.15 P.M. he screamed frequently for half an hour. At 7.30 P.M. the eyes were fixed, the pupils were equal, somewhat small, insensitive to light, the corneal reflex had gone, and the conjunctiva was dry. Up to this time he had remained in a state of apathy, from which it was impossible to arouse him, but he swallowed small drinks; he now became quite comatose. At 8.30 P.M. the pulse was again weaker and only palpable occasionally. The temperature was 102°. At 9 P.M., the skin being very dry, a hot pack was given but it produced no action of the skin. Half-pint saline enemata containing 30 grains of bicarbonate of sodium were given four-hourly from 10 A.M. At 6 P.M. and at 8.30 P.M. nutrient enemata of egg, starch, peptonised milk, and saline solution were given, the first only being retained. Champagne, in half-ounce doses, was given half-hourly from 9 P.M. The child died at 11.45 P.M. on Jan. 30th, 36½ hours after the operation and about 23 hours after the onset of symptoms.

The report from the Clinical Research Association on the urine read as follows: "The amount of urea in this specimen is 1.90 per cent., or 8.31 grains per ounce. The urine gives a distinct reaction for acetone but the reaction for diacetic acid is extremely doubtful." A report on a specimen of blood sent at the same time read: "This specimen gave no reaction for acetone but the amount was too small for decisive results." Unfortunately I was unable to obtain a post-mortem examination in this case.

The chief interest of the case lies in the rapidly fatal termination following the brief exhibition of chloroform for a minor and frequently occurring operation and the fact that no antiseptics were used such as might have contributed to the cause of death. My best thanks are due to Mr. F. Herbert Marson for permission to publish the notes on this case.

Stafford.

THREE CASES OF DELAYED CHLOROFORM POISONING.

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THE three following cases appear to be definite examples of poisoning by the delayed action of chloroform. Cases 1 and 2 died within 48 hours of the administration of chloroform, whilst Case 3 recovered after a severe illness marked by those symptoms which are now regarded as typical of the condition.

CASE 1.—A boy, aged two and a half years, was admitted to Liebert Ward on Dec. 3rd, 1907. He was a pale, poorly-developed child suffering from tuberculous disease of the right epididymis. Although his parents stated that he had had good health from birth his skeleton showed evidence of rickets and there was also a chronic eczematous condition of the scalp and forehead. The child had never had cod-liver oil and his diet had not been one calculated to lead to the deposit of fat in the tissues. The patient spent two days in hospital awaiting operation, and during this time the temperature and pulse were normal, there was no vomiting, and the urine yielded neither albumin nor sugar. No examination was made for diacetic acid or acetone. The child having been prepared by two drachms of castor oil by the mouth and a soap enema he was anæsthetised with chloroform on Dec. 5th about 11 A.M., the administration lasting for 20 minutes. No ethyl chloride was given and the course of the case was perfectly normal. The right testicle with a portion of adherent scrotal skin was removed as the tuberculous disease was found to have completely destroyed the epididymis and to have encroached also on the body of the gland. The involved structures were adherent to the skin and had broken down into one drachm of thick tuberculous pus. The adherent skin was very thin but had not given way. The wound was closed by silk-worm-gut sutures and a small rubber tube was left in the lower angle. The operation was carried out on "aseptic" lines and no antiseptic agent came in contact with the