of the place. It is so striking that one feels that a similar "atmosphere" in the maternity home would also be victory half gained. The patients would be carefully supervised during pregnancy, so that all cases likely to have obstructive or other abnormalities were kept apart, and the place labelled as a home or hostel for natural labour, and not called a hospital. The midwives and nurses, carefully chosen and inspired with the spirit of the place to see their patients through a natural labour, would be on their mettle to make the methods a success, and would provide the proper atmosphere in which all suggestion of failure is abolished. The medical supervision would be kept in the background, and care would only be required to see that the methods were not carried to the extreme of refusing to recognize failure and postponing forceps delivery to the detriment of mother and infant.

A scheme of this sort is merely applying lessons learnt elsewhere in medicine. It is Dr. Hurst's method at the Seale Hayne Hospital for shell shock and war neurasthenia. The man struck dumb comes to be cured into a place where the chattering patient in the next bed was dumber than ever he was, and was miraculously restored to speech, as he will be, and so is the cure wrought.

This brings us to the final consideration as to what the future of medical practice in regard to maternity work will be, and, without wishing to attempt the dangerous art of prophesy, I would indicate merely possible changes. The duty of the doctor will be, much more than in the past, the supervision and "vetting" of pregnant women, and the picking out for special management of cases where trouble is likely. The ordinary cases will more and more be left to the charge of trained midwives, medical attention being required rather for unforeseen complications, for the prevention of fatigue, and for delivery in protracted cases. I suggest that once the primary object of the medical attendant is recognized to be the securing of a normal labour, his attendance in the lying-in room is not essential, and, at any rate, need only be occasional—when summoned by the midwife, or for visits of supervision. This is necessary to avoid the strong suggestion of artificial interference which his attendance means, and because among women delivered by midwives the percentage of instrumental deliveries is low, and the reverse for those attended by doctors. I would hope that every practitioner in family practice would have a list of competent midwives, who would be reserved for the duty of attendance on labour, and not merely employed as monthly nurses, and would carry out his methods in the spirit as well as the letter.

It is perhaps rather much to hope for in this world of erring mortals, but it is something to look forward to, and when one notes the reluctance of medical practitioners to take midwifery cases, and sees advertisements of practices made attractive by the announcement that there is little or no midwifery, and recognizes at the same time the primary importance to the nation of the maternity service, the advantage of securing the best medical supervision without taking up too much time and service in attendance on normal labour seems only possible if most of that attendance be given by trained midwives. This involves rather a shifting of the medical service from the part where least essential to those parts where it is most essential: the observation of pregnancy, the study of the individual characteristics of the woman, and the determination of the best methods of management; supervising her labour merely so far as to be assured of the absence of complications, and deciding what is advisable to maintain good uterine action and to avoid fatigue, and generally being ready to answer the summons of his midwife and to act on her reports; after the labour to give much more attention to the puerperium, to lactation, and the young infant, than has been the case in the past. Doubtless the public will have a big say in any change of method, but hitherto the medical services for maternity work have never been paid for adequately, and their shortcomings are, to my mind, largely ascribable to that fact. The public has expected an expenditure of time and skill for fees that are by no means equivalent, and the tendency of the profession has been to cut the loss by shortening the duration of the labour artificially.

Perhaps these speculations as to the lines on which the maternity service will develop are wide of the mark, but I feel sure that they will tend to approach nearer to physiology, and not away from it.

THE TREATMENT OF SYPHILIS.*

BY

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The records we publish are the results of some investigations carried out by us in an attempt to gain more definite knowledge of the exact manner in which salvarsan—or one of its substitutes—acts in syphilis. To attain this end we have taken samples of blood before each weekly injection, a method which has afforded us a number of facts from which we have drawn certain conclusions.

It is common knowledge that when salvarsan was first introduced it was thought that one injection would cure syphilis. Further experience soon showed that several injections were required and that mercury should also be given. Such is the position to-day, but although potent arsenical drugs have been in common use for ten years, there is no general agreement as to what amounts of these remedies should be employed or over what time the treatment should be continued.

Curiously enough the first patient treated with salvarsan in the skin department of Middlesex Hospital in 1910 was cured by one injection of 0.6 gram of the original preparation, although the form of malignant syphilis from which he suffered had resisted all other remedies. As he was kept under observation for four years the belief in the reality of his cure seems justified. But such a result is unique in our experience. Indeed, considerable amounts of an arsenical compound and mercury may be given and yet failure result. These failures have tended to throw some doubt upon the efficacy of this form of treatment; but one must bear in mind that failure may be due not only to a defect in a remedy, but also to the manner in which an effective remedy is used.

TABLE I.—Cases of Secondary Syphilis.

	Intra- venous N.A.B. (No. of Injections).	Total Amount (Grams).	No. of Mercury Injections, each 1 Grain.	Wassermann Reaction.
No. 63 ...	6	2.7	17	Positive 13 months after end of course.
No. 68 ...	7	3.75	24	Positive 7 months after end of course.
No. 144 ...	12	10.2	13	Positive after 6 months.
No. 164 ...	10	6.0	14	Positive at end of course.
No. 190 ...	6	3.6	24	Positive after 1 year.
No. 32: Course 1	6	3.4	32	Suspicious at end of course.
Course 2*	6	5.4	29	Two months after this negative; 6 months later positive.

* Directly after Course 1, because of suspicious Wassermann reaction.

In Table I six such cases are shown. It should be noted that all were in the secondary stage—a peculiarly favourable period; that considerable amounts of novarsenobenzol and mercury had been given; and that in every case the Wassermann reaction ultimately became positive. In No. 32 actually two separate courses were undertaken. To save repetition it may be stated here that the arsenical preparation used in all cases reported in this paper was novarsenobenzol Billon (N.A.B.) administered by the intravenous route.

This type of treatment is thus open to criticism—although it is a form commonly followed—and should be replaced by some other. Either larger doses of N.A.B. should be used, or more numerous injections given, or both. These questions received consideration when Dr. Pringle took charge of the department in 1917, and he formulated a scheme which has been adopted. It is as follows: ten intravenous injections of N.A.B. are given at

* An address to the Essex Branch of the British Medical Association on September 23rd, 1920.

intervals of a week, the first of 0.6 gram, the remaining nine of 0.9 gram—in all 8.7 grams. With each an intramuscular injection of mercury is also given. While these doses may appear large they have but rarely been found excessive, and as they have now been used in a large number of cases, sufficient experience to form a judgement has been obtained. There are cases, but such are exceptional, where some modification is desirable, the reasons for which need not be particularized as they will be evident to any practitioner.

The results of such a series of injections on the Wassermann test from week to week is shown in the following tables (II, III and V), arranged in accordance with the stage of disease, primary, secondary, or tertiary. All cases shown in these series were males, as it is easier to obtain weekly samples of blood from them.

TABLE II.—Cases of Primary Syphilis.

Reference Number.	Spirochaetes.	COURSE WITH MERCURY—WEEKS:											
		1	2	3	4	5	6	7	8	9	10	11	12
904		++	++	++	±	++	+	o	o	±	—	—	—
956	Not found	++	++	+	+	—	—	—	—	—	—	—	—
998		++	o	++	++	A	+	o	A	—	A	A	—
1059	Present	++	++	++	++	o	++	o	o	+	—	—	—
922	Present	—	++	±	±	±	—	—	—	—	—	—	—
913		—	±	—	—	—	—	o	A	—	—	—	—
908	Present	—	o	—	±	—	—	—	—	—	—	—	—
981		—	o	++	o	+	—	—	—	—	—	—	—
1060	Present	—	—	—	—	o	—	o	—	—	—	—	—
1034	Present	—	—	—	—	—	A	—	—	—	—	—	—
COURSE WITHOUT MERCURY.													
1061		++	++	++	o	++	o	++	+	—	—	—	—
1079		++	++	++	+	—	—	—	—	—	A	—	—
1070	Not found	—	++	o	—	—	o	o	A	—	—	—	—
1124	Not found	—	++	—	—	—	—	—	—	—	—	—	—
1133		—	+	±	—	—	—	—	—	—	—	—	—

The symbols used in this table and in Tables III and V are to be interpreted as follows:

- ++ = Wassermann reaction strongly positive.
- ± = Wassermann reaction weakly positive.
- ± = Wassermann reaction suspicious.
- = Wassermann reaction negative.
- A = Absent from treatment.
- o = No sample of blood taken.

It is evident that the use of mercury simultaneously with the N.A.B. introduces a confusing element; we have therefore included a second series where no mercury was given during the ten injections, in order to obtain clearer evidence of the results of the salvarsan injections alone.

Examination of the above table shows, as is well known, that in primary syphilis the Wassermann reaction may be positive or negative. But it shows a further and important fact, that in the 9 cases where it was negative to begin with, in 7 of these it became positive or suspicious, although the patient was under treatment. Had not the weekly test been made, this would have escaped observation.

It is, of course, well known that the excision of the chancre does not prevent the subsequent progress of disease in untreated primary syphilis, but our investigations represent a different aspect of the problem. It has been held by many that, if treatment be immediately instituted in primary syphilis while the Wassermann reaction is negative, this prevents the development of a positive phase, and on this assumption it has been concluded that primary syphilis with negative Wassermann reaction is a much more favourable state than primary syphilis with positive reaction. The investigation of the disease week by week shows that despite treatment a positive reaction develops, therefore no distinction should be made between the two classes. Indeed, in two cases where the initial reaction was negative, the subsequent positive phase was discovered to persist longer than in a case where the initial reaction was positive—for example, 922 and 981, as compared with 956. It has been suggested by

a critic that some of the reactions correspond to a provocative response. These are, however, not cases of latent but of active syphilis, and therefore it would seem more correct to regard this appearance of a positive Wassermann reaction as evidence of progress of the disease.

There is a further point to which attention should be directed: in no case can the response to treatment be foretold from the type of chancre. Thus cases No. 1,059 and No. 1,060 were identical as regards date of infection and type of sore, and yet the reaction to treatment was completely different. Conversely, different types react as regards the Wassermann reaction in the same manner.

A comparison of the series treated with N.A.B. plus mercury with those treated by N.A.B. alone shows no marked difference. In the former, in two cases a negative response did not appear before the tenth week (904 and 1,059); in the latter the longest positive phase is represented by 1,061, the reaction remaining positive until the eighth week. The number of cases is not sufficiently large to admit of any dogmatic assertion, but so far as they go they show no distinct advantage in one method over the other.

The condition of the blood has been ascertained in six primary cases at periods of from six to eight months after commencement of treatment; all were negative.

TABLE III.—Cases of Secondary Syphilis.

Reference Number.	COURSE WITH MERCURY—WEEKS:														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
777	++	++	+	++	++	+	—	—	±	A	A	+	—	—	—
793	++	++	++	++	++	+	±	—	—	—	—	—	—	—	—
794	++	++	++	++	++	A	++	++	++	—	A	++	—	—	—
829	++	++	++	++	++	++	A	±	±	—	—	—	—	—	—
831	++	++	+	—	—	A	—	—	A	—	—	—	—	—	—
833	++	A	A	++	++	A	++	++	++	++	A	++	±	—	—
837	++	++	++	++	++	++	++	±	+	+	—	—	—	—	—
838	++	++	++	±	++	±	—	—	—	—	—	—	—	—	—
856	++	o	A	++	++	o	++	±	A	+	A	—	A	±	±
1019	++	++	++	++	+	—	A	A	A	A	A	—	—	—	—
854	—	o	++	±	—	—	—	—	—	—	—	—	—	—	—
900	++	++	++	++	A	++	++	±	—	—	—	—	—	—	—
959	++	++	++	o	++	++	±	—	—	—	—	—	—	—	—
986	++	++	++	++	++	±	±	±	—	—	—	—	—	—	—
982	++	+	—	++	+	—	—	—	—	—	—	—	—	—	—
992	++	++	A	++	++	++	±	—	—	—	—	—	—	—	—
996	±	—	—	—	—	—	A	—	—	—	—	—	—	—	—
1009	++	++	++	++	++	±	—	—	—	—	—	—	—	—	—
1024	++	++	+	±	—	—	—	—	—	—	—	—	—	—	—
COURSE WITHOUT MERCURY.															
1048	++	++	++	++	++	++	o	++	—	—	—	—	—	—	—
1067	++	o	++	++	++	++	o	A	—	—	—	—	—	—	—
1083	++	++	++	++	++	+	+	A	—	—	—	—	—	—	—
1087	++	++	++	++	++	++	++	++	++	+	±	—	—	—	—
1113	++	o	o	++	o	++	++	++	++	++	++	—	—	—	—
1135	++	++	++	++	++	++	++	++	++	—	—	—	—	—	—
1148	++	++	o	o	o	—	—	—	—	—	—	—	—	—	—
1119	++	++	++	++	++	A	++	—	±	—	—	—	—	—	—
1116	++	++	++	++	++	++	+	A	—	—	A	A	—	—	—
1157	++	++	++	+	—	—	—	—	—	—	—	—	—	—	—

¹ Wassermann reaction negative six months later.

² Wassermann reaction negative eight months later.

³ Patient ceased to attend.

⁴ Patient absent for eight weeks at this stage.

⁵ Treatment with N.A.B. discontinued as precautionary measure in consequence of slight erythema.

Table III is compiled in a manner similar to Table II, but here all the cases represent the secondary stage. As in the previous group two series are included, one where mercury and N.A.B. were combined, and a second where

N.A.B. alone was given. A favourable response to treatment is still found. In three cases 12 injections were given, in one 11, in one 9, in one 8, and in two 7; the remainder received 10 injections. No. 831 is an example of severe and extensive involvement of skin and throat, where the negative reaction appeared after the third injection. Thus in the secondary, as in the primary phase, the clinical manifestations alone furnish no information as to the rate of progress under treatment as judged by the change in the Wassermann reaction.

A more general examination of this table shows that a favourable response occurs somewhat earlier in the first series. The actual findings are brought together in Table IV, which indicates that there is some slight advantage in the plan of administering mercury and salvarsan together.

TABLE IV.—Effect of Treatment in Cases of Secondary Syphilis.

In patients who received treatment by Arsenic and Mercury the Wassermann reaction first become negative as follows:

After 1 injection in	...	...	1 case
" 3 injections in	...	...	2 cases
" 4 " "	...	...	2 "
" 5 " "	...	...	1 case
" 6 " "	...	...	3 cases
" 7 " "	...	...	3 "
" 8 " "	...	...	4 "
" 9 " "	...	...	1 case
" 10 " "	...	...	1 "

18

In patients treated by Arsenic only the Wassermann reaction first became negative as follows:

After 4 injections in	...	...	1 case
" 5 " "	...	...	1 "
" 6 " "	...	...	1 "
" 7 " "	...	...	3 cases
" 8 " "	...	...	1 case
" 9 " "	...	...	1 "
" 11 " "	...	...	2 cases

10

As compared with primary cases the negative reaction appears more slowly, but is still obtained. In Case No. 854 the Wassermann reaction was found to be negative at first, although a well-marked skin eruption was present. One other case, No. 829, demands comment. This is an example of a second infection occurring while the patient was still under treatment for a previous infection. He first came under our observation with a chancre on the abdomen and his progress during the series of N.A.B. injections is indicated in the table. Subsequent treatment with mercury was continued for one year when he again developed a chancre, this time on the penis. That this was not a relapse is shown by the following facts: The first chancre was upon the abdomen, the second on the penis, and there was a history of exposure four weeks prior to its appearance. Abundant spirochaetes were present in the second chancre. The Wassermann reaction was negative at periods of six and nine months after the first infection. It is interesting to observe that this man had remained under treatment up to the time of his second attack, and thus acquired syphilis while saturated with mercury, and that his Wassermann reaction became positive shortly after the appearance of the second chancre. It is impossible to say whether he would have developed secondary manifestations or not, as he was put under further treatment with N.A.B. immediately.

From the facts appearing in Table III certain deductions may be drawn. It is evident that an "intensive" course limited to six injections, especially where smaller doses are used, may be insufficient. Further evidence of this is found in the number of cases so treated coming to hospital with clinical or serum relapse. Five such cases are included among the above series. There would appear, on the other hand, to be good reason for adopting the "ten" series, provided the beneficial effect is maintained by continued mercurial treatment, the nature of which will be described later. This belief is confirmed by the subsequent behaviour of the secondary infections. Investigation was made in fourteen cases at periods of from six to twelve months after commencement of treatment; all were negative. In twenty other secondary cases treated in a similar fashion, nineteen were negative and one suspicious after six months. Such

evidence does not prove cure, but it demonstrates that a process of curing is taking place.

TABLE V.—Cases of "Tertiary" Syphilis.

Duration of Disease.	Reference Number.	COURSE WITH MERCURY—WEEKS:									
		1	2	3	4	5	6	7	8	9	10
Leucoplakia 20 years	796	++	++	++	++	o	++	++	++	++	A
Tabes 10 years	801	++	o	+	—	—	+	—	±	++	++
18 years	802	++	++	++	++	++	++	++	++	++	++
3 years	828	++	++	++	++	++	++	++	++	++	++
8 years	853	++	++	++	++	++	++	++	++	++	++
20 years	872	++	o	++	++	++	++	++	++	++	++
9 years	925	++	++	++	++	++	++	++	++	++	++
30 years	905	—	o	—	—	o	—	—	—	—	—
Congenital	936	—	o	—	—	—	A	—	—	—	—
Tabes 15 years	954	—	—	—	—	—	—	—	—	—	—
22 years	969	++	++	++	++	++	o	++	++	++	++
7 years	1020	++	++	++	++	++	++	++	++	++	++
Congenital	1028	—	±	—	—	—	—	—	—	—	—
COURSE WITHOUT MERCURY.											
7 years	1049	++	++	++	++	++	++	++	++	A	++
32 years	1047	++	++	++	++	++	++	++	++	++	++
Leucoplakia 20 years	1064	++	++	++	++	++	++	++	++	o	o
Gummata 10 years	1093	++	++	o	++	++	++	++	++	A	++
Tabes	1094	++	++	++	++	++	++	++	++	++	++
Perforating ulcer 30 years	1118	++	++	++	++	++	++	++	++	++	++
Tabes	1121	—	—	—	—	—	—	—	—	—	—
20 years	1123	++	++	++	++	++	++	++	++	++	++

Before beginning a consideration of the series of tertiary cases we should explain that we employ this term—admittedly an unsatisfactory one—because it is useful as expressing a syphilitic state of some years' duration; it denotes the hypersensitive period. As in the tables of primary and secondary disease, two separate series are included. It is, however, unnecessary to consider them apart.

The characteristic feature of this series of cases is the unaltered state of the blood reaction. The initial positive or negative remains constant throughout. In every case shown in the table some active syphilitic manifestation existed. Thus, in No. 936, a man aged 34, interstitial keratitis and gummata of both legs were present; while the Wassermann reaction remained negative, the gummata healed rapidly under treatment. One other case may be noticed; in No. 801 a temporary negative phase occurred about the middle of the course of N.A.B. injections. Before coming under our care this man had received five injections, which may account for the unusual finding.

We have ascertained the later results in 10 cases. At periods of seven to nine months the Wassermann reaction was still positive despite the ten injections of N.A.B. and the further use of mercury up to the time the test was made.

The following general conclusion may be drawn in respect to old-standing disease. Although the symptoms which the patient presents may be relieved, treatment fails to influence the Wassermann reaction permanently. It is true that by prolonging the treatment over several years a negative Wassermann reaction may be sometimes brought about; but in our experience such an effect is not lasting.

GENERAL OBSERVATIONS.

Although it is not strictly within the scope of this paper, treatment is so intimately connected with diagnosis that some reference to the interpretation of the Wassermann reaction may not be untoward. It is becoming more and more common for patients to be referred by practitioners, or to come voluntarily, for a "blood test." Even the evidence of a single negative Wassermann reaction is sometimes accepted as conclusive. But the Wassermann

reaction is only one of the factors upon which diagnosis should be based. In all forms of syphilis, including the secondary, a negative Wassermann reaction may be met with. Nor is there anything in the nature of syphilis to prevent the person infected with it and having a positive Wassermann reaction from developing some other disorder—for example, psoriasis or scabies. Hence, if the syphilitic nature of any lesion of the skin or elsewhere be concluded or excluded solely on the result of a "blood test" many mistakes will be made. This consideration is not purely academic. Examples of error arising in this way have frequently come under our observation. Nor should the statement that treatment has an effect on the Wassermann reaction be allowed to pass unchallenged. Treatment has an effect upon the disease, and this is shown in the primary and secondary stages by the changing character of the reaction. In the later stages, on the other hand, treatment may alleviate or remove symptoms, but in the great majority of cases it does not cure the disease, and therefore fails to influence the reaction. These statements are borne out by the findings in the foregoing tables.

What is the meaning of such persistent positive Wassermann reactions? Are they merely the result of some habit of the tissues acquired as the result of previous infection? We believe this is not the case, but that they indicate the presence of spirochaetes. The best evidence for this belief is obtained from consideration of gummatous conditions of the skin. We know that treatment causes gummata to disappear, but we also know that the chance of subsequent relapse is considerable. But gummata are the consequence of local spirochaetosis. Here, then, the persistent Wassermann reaction is clearly associated with the continued presence of spirochaetes. In the case of disease of the skin the evidence is more obvious, because we can actually observe what happens, but consideration of facts goes to show that the above statement is equally applicable to old-standing disease of other parts of the body. The spirochaetes have acquired some property enabling them to withstand remedies capable of destroying them at an earlier period of infection. This indifference **of chronic infection to remedy is common to infective processes in general, and in this syphilis only obeys a recognized pathological law.**

Syphilis is but one process, whether it involve skin, mucous membrane, nerve, or other tissue, and the phenomena which go to make different diseases are largely the result of mechanical interference with function. The principles upon which treatment is based vary in accordance with the duration of infection. When infection is recent—that is, in primary and secondary syphilis—two objects are in view: cure of disease and prevention of communication to others, for at this period the disease is contagious. Therefore a severe and lengthy course of treatment should be undertaken. On the other hand, in old-standing disease only symptoms are treated, because the disease is now very difficult to cure and is no longer communicable. Therefore the form of treatment may be shorter, and repeated from time to time as circumstances demand.

In forming a comparative estimate of the value of salvarsan and mercury certain considerations should be borne in mind. In the early stages salvarsan should be used to bring the disease within the scope of mercury, which finishes the cure. Salvarsan rapidly brings about the negative phase, which is maintained by mercury. This may be interpreted as follows: Salvarsan destroys the majority of, sometimes all, the spirochaetes, and mercury kills any which may have chanced to escape. But the amount of salvarsan must be adequate. As is shown in Table III, six injections are often insufficient. Nor are small doses satisfactory; not only is the favourable effect on the Wassermann reaction often wanting under their use, but when they are employed the clinical manifestations after a period of improvement may become active again, even under treatment. The "ten" series seems largely free from these objections, and although lesser amounts have succeeded in many cases, the standard of treatment should depend upon what the average, not the favourable exception, requires.

In primary and secondary stages, then, treatment should commence with the series of ten intravenous injections of N.A.B. already outlined. There appears to be an advantage in giving mercury at the same time, but the evidence in favour of this is not conclusive (see Table IV). On the

other hand, if mercury be withheld during the period of arsenical medication, opportunity is afforded for improving the condition of the teeth and mouth and thereby diminishing the chance of subsequent mercurial gingivitis, a point of practical importance, since such an occurrence may seriously interfere with subsequent treatment.

When the salvarsan course is concluded mercury is administered by the intramuscular route for three months. The condition of the Wassermann reaction is then determined. If positive, the course is repeated from the beginning. If negative, mercury, either in the form of injections or pills, is continued until two years have been completed from the commencement of treatment with suitable rests, the Wassermann reaction being investigated every three months.

Such a course is doubtless severe and prolonged. But with ordinary care and modification, if any condition demanding this arise, it can be carried out without harming or even inconveniencing the patient. When the serious results of failure are put in the balance against it, it would appear to be entirely justified. Nor should the consequence of delaying cure be forgotten. As time passes the disease becomes more fixed; therefore, if failure result from any form of treatment, the time that has passed in carrying this out may have allowed the disease to merge into an incurable state.

In the late stages in our series ten intravenous injections of N.A.B. and then three months' intramuscular mercury were given. What may subsequently be done depends upon the clinical progress of the case. In this connexion it should be remembered that in disease of the nervous system there is often a considerable latent period, up to three or four months, before improvement becomes evident. Repetition of this course is generally necessary, and this would be expected from what has already been said in reference to the Wassermann reaction.

Finally it may be added, that even in late stages of the disease active forms of medication, such as salvarsan or mercury by inunction or injection, are preferable to other methods.

SUPRAPUBIC DRAINAGE OF THE BLADDER:

THE DE PEZZER TUBE.

BY

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For a considerable period acute retention of urine has been relieved by puncturing the bladder with trocar and cannula. More recently a number of operations have been devised to facilitate suprapubic drainage and prevent any leakage into the pre-vesical space or upon the external abdominal wall. In certain suitable cases the insertion of the self-retaining tube invented by M. De Pezzer fulfils its purpose of draining the bladder from above the pubes without leakage or discomfort.

The bladder should be distended with at least 16 oz. of boric lotion at body temperature. An incision of about three-quarters of an inch is made just above the pubes. The sheath of the rectus is then cut; with the tip of the finger the fibres are separated and the bladder wall felt beneath. A trocar and cannula, the latter fitting a No. 28 De Pezzer tube, are then plunged through the bladder wall. The trocar is removed; the tube, guided by a stilette, is passed through the cannula into the bladder. The cannula is withdrawn and then the stilette, leaving the tube in the bladder. The end of the tube is mushroom-shaped and plugs the orifice securely, automatically flattening out with the rise of urine; moreover, the hole in the bladder is exactly equal to the size of tube, so that leakage is impossible.

After the wound has healed, usually about forty-eight hours later, a wooden stopper is inserted into the distal end of the tube and the patient is able to walk about in comfort without fear of wetting his clothes. A rubber garter round the thigh holds the tube in position. So simple and practical is this device that when the patient desires to micturate he can slip the tube from under the garter and remove the wooden stopper, thus relieving nature by the artificial means as easily as by the natural.

In order to keep the urine sweet and the tube free from mucus and phosphates, the patient should be provided with a glass syringe and instructed to wash out the bladder morning and evening with pot. permang. 1 in 8,000. Acid sodium phosphate gr. xv-xxx four times daily should be given to keep the urine acid.