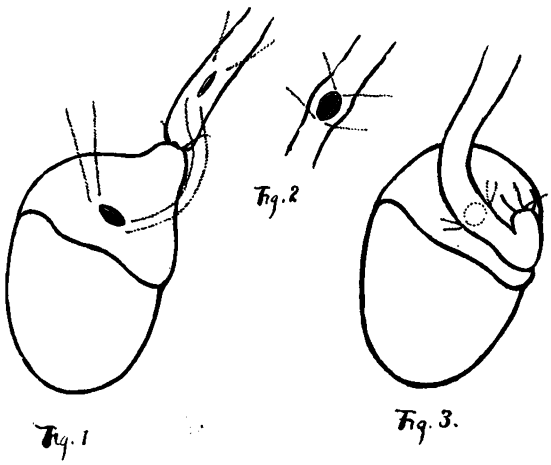
1. The anatomical results are shown by the following photomicrographs:



FIGS. 1, 2, 3 (diagrammatic), show technique of suture. Note, ligature of vas at its junction with epididymis, and that the sutures are so placed in the vas that when tension is made on them the slit-like opening is changed to a more circular form.

2. To demonstrate functional patency of the anastomosis the seminal vesicles were emptied by stimulation of the hypogastrics (as above outlined) at the time of the original operation. At a subsequent date, varying from ten to twenty-seven days,[13] the abdomen was again aseptically opened, ejaculation caused, and the semen examined under the microscope.

Four animals were thus examined with the following results:

Pig No.	Ejaculation, Days post. op.	Motile sperm. by microscope.
2	10	Abs.
4	11	Pres.
5	10, 21	Pres.
7	12, 20, 27	Pres.

The ease with which these anastomoses can be done on man was also demonstrated by the writer on an autopsy subject. Here the use of such fine needles make it unnecessary to penetrate the lumen of the vas.

The above work, added to the evidence obtained from the writings of Martin and others,[14] make it undoubted that such a vaso-epididymal suture with proper technique is a perfectly definite surgical possibility. There remains to be discussed its application to the clinical condition of sterility.

Applied to the human being the diagnosis of permanent azoöspermia due to obliterating epididymitis having been established, this operation has as advocates for its employment three main facts. The first is, that, carefully and intelligently done, the condition after operation cannot possibly be worse than that existing before, even though the patency be not restored. "You can't spoil a bad egg."

Secondly, since the restoration of patency on one side only is sufficient to permit ability to impregnate, this therefore means that the patient has a double chance of cure.

The third fact is that this operation, offering, as it does, practically, the only rational treatment for such a sort of sterility, has been proved feasible both in animal and man.

In the performance of the operation we must of course consider carefully the seat of stenosis in relation to the anatomy of the parts, and in each instance make the union at a place which will as surely as possible create an efficient short circuit. The determination of such a spot on the epididymis can best be made by the hypodermatic syringe. Withdrawal of a drop or two of fluid and demonstration of motile spermatozoa by microscope will show clearly where to make the anastomosis.[15] This point having been settled, the rest of the operation will be found of easy execution.

In summing up, the following points may be emphasized:

1. In all cases of sterility both husband and wife should be carefully examined.

2. Sterility in a certain number of instances is due to the stenosing effects of a bilateral epididymitis.

3. When so caused it may be relieved by an anastomosis between the vas and epididymis below the point of occlusion, as has been demonstrated on guinea pigs (author) and on dogs and man (Martin).

4. Such an operation offers practically no risk to life.

5. Its performance is not difficult, needing only familiarity with the anatomy and pathology, proper suture material and gentleness in manipulation.

I wish to acknowledge the courtesy of the Department of Physiology of the Harvard Medical School, in whose laboratory the above experimental observations were made.

[13] Massazza (*cit.* by Furbringer) has found that spermatozoa disappear by the ninth day following castration. This was shown on various animals.

[14] Bogoljuboff: Arch. f. klin. Chir., Bd. lxxiv, no. 2.

[15] Posner and Cohn: Zur Diagnose und Behandlung der Azoospermie. Deutsch. med. Wochenschr., 1904, p. 1062.

THE ANALYTIC METHOD IN PSYCHOTHERAPEUTICS. ILLUSTRATIVE CASES.

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THE attempt has been made during the last year in the Neurological Department of the Massachusetts General Hospital (service of Dr. J. J. Putnam) to systematize methods of mental treatment. The investigations of the past few years have conclusively shown that much may be expected from a judicious and painstaking application of methods of mental treatment, quite apart from the use of hypnotism. The recent book of Dubois on this subject, and various papers by Freud, and the comprehensive work of Janet [1] and others [2] will no doubt have a wide influence in

[1] Prof. Janet is at the present time delivering a course of lectures on Psychotherapeutics, in the Lowell Institute Course in Boston, a further indication of the general interest which the subject is exciting.

[2] Under the care of Dr. J. J. Putnam and Dr. G. A. Waterman, admirable results have been obtained, through psychotherapeutic methods, in patients admitted to the hospital (neurological ward). See BOSTON MED. AND SURG. JOUR., 1904, cli., 179, and Putnam, Jour. of Abnormal Psychology, 1906, 1. See also Barker, Am. Jour. Am. Sc., 1906, cxxxii, 499.

rationalizing a method of treatment which has too long been regarded as without the pale of therapeutic effort.

A fundamental difficulty in psychotherapeutics up to this time has been a lack of method. With this in mind the attempt has been made at the Massachusetts General Hospital to select certain patients presenting themselves at the Out-Patient Department, and to treat them in a systematic and rational manner, without the use of drugs. The results up to this time have been so far encouraging that it is expected a more complete trial will be given the methods this coming winter, whereby it is hoped sufficient data may be obtained for a somewhat comprehensive report.

It will not be questioned by those familiar with an ordinary neurological out-patient service that a very considerable number of patients appear whose ailments require not the use of drugs or of mechanical means of treatment, but rather analysis of the disordered mental state, and treatment of the condition based on the results of such an analysis. It is to this class of patients that our efforts have up to this time been directed, and with results which unquestionably justify the further prosecution of work along the same general line.

We have no desire at this time to enter into detail regarding the methods employed. The essential feature is, first, an analysis of the mental states underlying the condition as it appears on the surface, and an attempt by explanation and reason to allay the fears to which the patient's false interpretation of the condition has given rise.

As examples of a type of disorder which may be reached by the methods employed, we quote the following cases. A large number have been treated more or less completely by similar means, but these illustrate better than others the principles involved and the excellent outcome of the treatment is certainly ample justification for their publication.

CASE I. Miss C, age thirty-four, single, suffers from recurrent loss of speech of which she gives the following history:

For many years, especially during the winter months she has been subject to colds with a tendency to hoarseness. About one year ago she had one of these attacks of hoarseness with some cough, apparently a laryngitis, when she suddenly lost her voice completely and this condition lasted for several days. Since that time she has been having recurring attacks of loss of voice, coming on apparently without definite cause. These attacks have become more and more frequent and of greater duration. She has been coming to the clinics of the Massachusetts General Hospital for the last six months. The note from the Laryngological Department on the first examination reads: "Laryngoscopic examination shows normal movement of the cords. Patient phonates with mirror in position but stops when the mirror is withdrawn." The diagnosis of "hysterical aphonia" was made.

The application of the faradic current to the throat and other means would in a very short time restore the voice. She would leave the hospital apparently cured, only to come back in a few days as bad as ever, not being able even to whisper. She was thus coming regularly for electrical treatment getting only temporary relief; her condition grew worse and she became unable to use her voice the greater part of the time. Beyond general nervousness and irritability she complained of no other symptoms.

Physical examination was entirely negative. All superficial and deep reflexes were normal. There was no anesthesia and no limitation of the visual field.

It was thought desirable to probe to the bottom of this case, to find out, if possible, what was the meaning of the aphonia coming on in an otherwise healthy, though nervous, young woman. With this end in view we questioned her closely as to her previous life, as to emotional traumas and as to her family relations. The patient was very timid and reticent. She seemed to resent greatly this scrutiny into her life and the fact that notes were taken while talking with her disturbed her very much. She answered in monosyllables and volunteered very little information, although it was quite evident that there was something in her mind about which she did not wish to speak. She was assured that it was not mere curiosity that prompted these questions but that in order to effect a permanent cure we must have her confidence.

Two days later the patient came again to the hospital, unable to speak. Her voice was restored by the faradic current, and much against her will she was retained and questioned again. Very uncommunicative at first her confidence was finally obtained and she told us of her trouble. The great misfortune of her life, she told us, was that a brother of hers, to whom she had been greatly attached, had become insane and was in an insane asylum for several years where he recently died. This unfortunate episode in her family she regarded as something that must never be spoken of. It was something which the family was ashamed of, and about which no one must know. She had undergone a struggle before she decided to speak to us about it.

Now that the ice was broken, however, she became more communicative. While her brother was in the asylum it was her painful duty to visit him once a month. Each visit was to her the most trying ordeal, and it took several days before she could get over the depression which the sight of her unfortunate brother produced. On several occasions her brother became maniacal while she was present; on one occasion particularly he attacked the attendant while she was there, and was handled very roughly in consequence. Further questions elicited the fact that frequently the visits to her brother were made while she was suffering from an attack of laryngitis and hoarseness. She had a particularly severe attack of hoarseness on the visit when her brother attacked the attendant.

Before leaving, the patient assured us that she had not felt so well for a long time, the telling of her troubles gave her a great deal of relief, "as if a burden were taken off her shoulders."

Freud has in a number of communications of recent years pointed out the important rôle which suppressed mental states play in the activities of our daily life, the extent to which they enter and determine the phantasmagoria of our dream states, and the prominent part they play in the evolution of hysteria. For various motives, either because of the painfulness of the states themselves, or owing to the fact that these states do not harmonize with our moral convictions or with our social environments there is a prevalent tendency to suppress them. They do not however remain dormant but profoundly influence our

activities and give rise to a variety of manifestations. In his "Psychopathology of Everyday Life," Freud points out that such commonly occurring phenomena as the forgetting of familiar names, slips of the tongue and of the pen, maladjustments, and accidental and purposeless acts, all are the manifestations of subconscious motives.

But this suppression of mental states plays a far greater rôle in the etiology of hysteria. The patient has an unpleasant emotional experience which for one reason or another he suppresses. The cerebral excitation set up by the emotion not finding its normal path of discharge, because the patient forces that emotion from his conscious attention and does not react upon it in the normal way, will discharge itself in an abnormal path, will become "converted" into a somatic phenomenon, and give rise to an hysterical symptom. This process Freud designates as "hysterical conversion."

The particular symptom into which the emotional excitation will become "converted" depends on a variety of conditions. Co-existence in time is a prominent factor in this conversion. If at the time of the original trauma a certain sensory or motor state existed that state will tend to recur whenever the emotion is aroused. But owing to the effort of suppression the emotion will ultimately remain subconscious while the associated state will recur as an hysterical symptom. The association between the suppressed emotion and the converted symptom need not necessarily be that of co-existence; it may be a very trivial chance association, or the somatic manifestation may be but a symbolic representation of the suppressed state as, for instance, nausea and vomiting as a result of moral degradation and disgust.

In our case the loss of voice is the "hysterical conversion" of the large number of emotional traumas which the patient sustained on her visits to the asylum. Social prejudice was the motive for the suppression of these emotions. While sustaining these traumas the patient frequently suffered from hoarseness, particularly at the time that her brother, in a maniacal state, attacked the attendant. Thus the emotions and inabilty to speak were associated and the latter became the converted somatic phenomenon of the suppressed emotional state.

It is still further possible that the aphonia has, in this case, a symbolic meaning. The sole aim of the patient was to prevent what she regarded as a family stain from gaining publicity. This must be kept secret at all costs. She must never refer to or speak of her unfortunate brother, hence the aphonia.

Once the case was analyzed the therapeutic measures were to relieve the patient's mind of the popular prejudice that exists about insanity. She was given to understand that insanity is a misfortune and not a crime, that there is no more shame connected with it than there is with physical disease. Moreover, the condition was fully analyzed to her and in simple language she was given to understand how her trouble originated.

The aphonia never returned [3] after the first explanation and although she came regularly to the clinic for several months she did not lose her voice once. On one or two occasions she came in with hoarseness but no loss of voice. The condition cleared up completely, and now after ten months the patient is well and considers herself cured. She assures us that she has never felt so free from nervousness and irritability as she does now.

The case derives its interest from the facts that the patient was temporarily relieved of her aphonia by various relatively simple means, but that it occurred with increasing frequency until a rational cause for its occurrence was discovered, and explained to the patient. From that time on the relief has been essentially permanent.

CASE II. Mrs. B, a young Jewess, of twenty-eight, came to the neurological clinic of the Massachusetts General Hospital complaining of peculiar "nervous attacks," of severe headaches, and of a variety of nervous symptoms which "made existence almost unendurable." According to her story she was perfectly well till one year ago. The attacks which during the year have, in spite of treatment, increased in severity and frequency are as follows:

The attacks most often come in the morning about twenty minutes after rising. She begins to feel "queer" and finds herself "shaking all over." A few minutes later she hears noises of ringing bells in her right ear; her vision, especially of the right eye, is blurred and she sees stars and flashes of light in front of her. She feels very weak and restless. The house is too small to hold her. She leaves the house and walks up and down the street for about twenty minutes when the attack usually passes off. On returning to the house she feels weak but is able to attend to her work. She never loses consciousness during the attack, and she knows and recognizes her surroundings, although she states that things look queer to her "as if they were far away." From two or three a week, these attacks have increased in frequency so that she now has them almost every day. In the intervals of attacks she suffers from severe occipital headaches which have not been relieved by glasses.

Physical examination of the patient was entirely negative. All the superficial and deep reflexes were present and normal. There were no motor or sensory disturbances. Her field of vision, by rough test, was normal. Hearing was good and equal on both sides. Sense of taste and smell normal.

On careful inquiry the following history was obtained. About a year ago the patient and her husband were awakened in the middle of the night owing to a fire which broke out in a neighboring house. Partly dressed, in a dazed condition, she was put out in the street and was much terrified by the flames and smoke which confronted her. In a state of collapse she was taken to a neighboring house where she rested for a few hours and later was taken home. She had become somewhat composed but she felt "that the severe fright was bound to leave some ill after effects." One morning about three weeks after the accident the patient, without any apparent cause, had one of the attacks described above, and in spite of medical treatment she has been having these attacks since with increasing frequency.

[3] Since these notes were written, a temporary relapse occurred due to an emotional strain. but the aphonia was easily overcome by the simple process of explanation and an appeal to reason.

In addition to the attacks and headaches the patient complains that since the fright she is not the same as she used to be. Her character has undergone a radical change. While formerly rather calm and composed, she has become extremely irritable and easily annoyed by trifles. Things and persons formerly of great interest have ceased to attract her. She has become indifferent to her friends to whom she was formerly much attached. While formerly fond of reading she is unable to read now as she cannot fix her attention for any length of time.

For about six months after the fire the patient's sleep was greatly disturbed by distressing dreams. Very frequently she lived through in her dreams the distressing experiences of the memorable night. During the last few months, however, her dreams have been commonplace, concerned as they are with the affairs of her daily life. Very frequently she wakes in the morning knowing that she has had a distressing dream but is unable to recall the content.

It is apparent from an analysis of the attacks that they are directly related to the emotional shock of the night of the fire. The attack, it may easily be seen, is an exact reproduction of the original trauma. During each attack she lives through the exact sensory-motor and emotional states of the original fright, without recognizing them. The feeling of queerness, the lack of the feeling of reality which she experiences at the beginning of each attack, reproduce the semi-waking hypnoidal state she was in on that night when she went out in the street. The noises in her ears, the ringing of bells, are a reproduction of the bells and noise of the fire engines. The blurred vision and the stars which she sees reproduce the smoke and the sparks which confronted her as she emerged from the house. So detailed is the reproduction that even the motor phenomenon of going out into the street is reproduced at each attack.

The emotional tone of the attack is a vague, general, objectless fear. We have here a phenomenon common in hysteria, the dissociation between the emotional tone and the ideational content. The latter remains subconscious while the former comes to the surface manifesting itself as vague fear. Often the fear attaches itself to some indifferent object and thus gives rise to various phobias. Such a dissociation between the emotional tone and content is a sufficiently common phenomenon of dream states. An intense emotion of waking life will repeat itself in a dream state but with an entirely different content. The emotions of the dream have no relations to the representations, to the phantasmagoria of the dream. They do not belong together. The emotional tone of the waking experience is transferred to the otherwise indifferent dream representations.

In view of the recent work that has been done on hysteria, in this country, notably the work of Sidis and Prince, the analysis of such a case is perfectly clear. The patient lived through an emotional experience which produced a severe shock. At the time of the trauma she was in a semi-waking state. The hypnoidal state and the emotional trauma prevented a complete synthesis. The traumatic experience with its sensory-motor manifestations remained dissociated from the rest of the patient's mental life. This complex of experiences because of its dissociation remained removed from the inhibitory influences of the rest of the mental life.

Sidis has pointed out how these subconscious states because of the low type of their mental organization become automatic and tend to recur. Their dormant activity may be awakened by the stress of an emotion or by the association of ideas, and when thus awakened they react in a stereotyped manner. The entire group of sensory motor experiences characterizing the original trauma is reproduced and the patient lives through subsconciously the original experience without realizing its meaning.

To have established beyond all doubt the existence of the subconscious states in this case it would have been necessary to put the patient in hypnosis, to artificially induce an attack and thus come directly into communication with the subconscious. Unfortunately, the conditions in an out-patient clinic are not favorable to such a procedure, moreover, for the therapeutic result such a procedure was entirely unnecessary. The cure of this case was most satisfactory, and to the patient it appeared nothing short of the miraculous. The whole condition was analyzed to the patient. The meaning of the attacks was explained to her in a very simple way. The result surpassed all expectations. The attacks have not recurred after the first talk we had with the patient. The patient was seen quite often for several months with a continuous and marked improvement in her general condition. The headaches have disappeared and she has become less irritable and more like her former self. A few weeks after the treatment was instituted the patient's husband met with a very serious accident and he was for a time in the hospital in a critical condition. But even under such distressing circumstances the attacks did not recur, and the patient herself saw in that the sure sign of her complete recovery.

There seems no sufficient reason why a method of this sort should not be more extensively used in out-patient medical work. The intelligence of some patients renders the task a difficult one no doubt, but in the great majority of cases a little perseverance will accomplish the desired results. The patients themselves quickly learn to realize the value of the suggestions made to them in the course of the analysis of their conditions, and appreciate also the time given and the effort made by the physician in their behalf. A very large proportion of the patients are amenable in greater or less degree to this type of treatment, and although many still clamor for drugs it is not to be doubted that a relatively small amount of effort directed toward their education in these matters will easily remove this preconceived idea to the benefit of all concerned.

The immediate need of the future is to rationalize and at the same time systematize such methods of treatment. It is equally essential