position, such as an arm or leg hanging over the sharp edge of a table.

It appears then that the only type avoidable is the last mentioned. All faulty positions should be guarded against and no long-continued pressure of any nature should be allowed. This paralysis corresponds to the pressure type with a favorable prognosis. Recovery is the rule where there is no degeneration or atrophy. A severe numbness or even a slight paralysis is not uncommon from pressure on a nerve trunk in alcoholics, but the writer has never seen a case that did not fully recover.

If there is no degenerative atrophy the use of electricity is indicated. Massage, passive motion, and injections of strychnia in the region of the nerve trunk, have done good.

As precautionary measures the surgeon should not permit too long an elevation of the arms, tight clamps or straps, head resting on the arm or an extremity hanging over the table. The fallacy among medical men is the belief that peripheral palsies recover soon and for that reason do not give these accidents proper attention.

The medicolegal question may arise here as to the liability of the surgeon if he has not taken all the precautions protecting his patient. Hence, it is evident that suitable prophylactic measures should be instituted before the subject becomes one of jurisprudence rather than medicine.

DISCUSSION.

DR. F. SAVARY PEARCE, Philadelphia—There is a woman under my care at the present time who has a post-operative paralysis owing to brachial pressure caused by the position in which she was placed during an abdominal operation. A point in etiology is, in part, as to whether the patient has a good amount of flesh cushioning her tissues; this woman was very slender, and of course there was less protection over the clavicle when the arm was extended.

The medicolegal aspect has also come to my attention, for in these cases the patients are inclined to blame the surgeon. The prognosis is very good in such pressure palsies. You are apt to find later, too, an exceeding amount of wasting and consequently a good deal of deformity, which brings the condition more to the patient's mind. It is here that we can give the surgeon a good word by promising a favorable prognosis.

DR. DOUGLAS GRAHAM, Boston—I think a very common form is crutch paralysis, and if we get that in time there is almost an immediate relief through massage.

DR. C. C. HERSMAN, closing—Even in the medical profession a great many men, instead of stopping to inform themselves, really think that the paralysis is caused by some mysterious effect of the anesthetic. Very often the man who is selected to give the anesthetic does not know that one position is more dangerous than another. Then if the paralysis does come on it is allowed to recover of its own accord, instead of Nature being assisted.

THE TREATMENT OF NEURASTHENIA.*

DANIEL R. BROWER, M.D., LL.D.

Professor Mental and Nervous Diseases, Rush Medical College, etc. CHICAGO.

We have made great advances in every department of nervous and mental diseases, especially in pathology and diagnosis, but the least progress has been made in therapy. Those who are most active in the field of research seem to pay but little attention to this, the practical part. One of the best of our recent text-books on nervous diseases devoted twenty-six pages to neurasthenia, but only two to treatment. It is with the view of stimulating work in this direction and not with the idea of presenting anything novel that this paper is read, and with the hope that it may provoke a discussion that will be of service to us all in the treatment of this commonplace disorder.

Neurasthenia has always been regarded as a functional disease, with no pathology, but a flood of light has been thrown on it by the investigations of Barker, Hodge, Mann, Eve, and many others as to the effect of prolonged activity and repose, and the effects of intoxications on the neurons. These researches have enabled us to comprehend the pathogenesis of the clinical phenomena that are found in the cases that develop gradually from overwork, anxiety, fret and worry and those that result from autointoxication and other intoxications.

Neurasthenia is an exhaustion of those neurons, the effect of defective metabolism; it is a pathological fatigue arising most frequently from gastrointestinal autointoxication. The vasomotor mechanism is the first to show the effect and the degree of disturbance in vascular tension, as Weber¹ pointed out, is a great aid in prognosis.

Neurasthenia being pathological fatigue, the first indication for treatment must be rest, mental and physical, and the first difficulty in every case is to determine whether this should be absolute or partial. In my opinion very few of the cases require absolute rest and many of them are injured by it. If the case has been one of long duration and very severe, with a very low arterial tension with very pronounced dyspeptic symptoms, four to six weeks of absolute rest will be necessary, and this should be on the Weir Mitchell plan with isolation, massage, faradic electricity and special diet.

A partial rest is all the great majority require, and the amount must be carefully determined in each case. It is usually sufficient to have them retire early, get up late, and take one or more hours of rest at noon. This rest at noon should be in a quiet, darkened room, should be absolute, with as perfect a condition of muscular relaxation as possible; one hour may be sufficient, but two is better. I regard this noon rest as very essential and it is possible even with men in active business.

Equally important with rest is the dietetic management; indeed, rest and recuperation are the two things aimed at, and recuperation must come through digestible and assimilable diet. The diet should be largely nitrogenous, and in order to promote its digestion and assimilation, sugar and sugar-producing articles should be used in the smallest possible amounts. I am sure that beef, mutton and eggs should furnish the basis of the dietary, with milk, of course, when it agrees, and if sugar is cut off these foods are more perfectly elaborated. The predigested foods are of great benefit, for many of these cases with their want of tone in the digestive organs can not properly digest ordinary diet; and failure to recuperate is often due to this cause. Therefore, make much use of predigested food, giving special preference to malted milk and somatose, ordering a teaspoonful of the latter with a cupful of the malted milk, and this in the absolute rest cases may be given every two hours; in the partial rest cases between each meal and at bedtime. I think this compound is much better than milk in many cases. Caution must always be used in so spacing the interval between the feedings as not to overtax the digestive organs. While there is comparatively little danger of this in using predigested

* Presented to the Section on Nervous and Mental Diseases, at the Fifty-first Annual Meeting of the American Medical Association, held at Atlantic City, N. J., June 5-8, 1900.

1. Boston Medical and Surgical Journal, May 5, 1898.

foods, yet I think mistakes are often made with ordinary foods in this way. We fortunately have many kinds of predigested foods, efficient as nutritive agents, but of such different tastes that we can usually satisfy the palate of the patient as well as serve the nutritive demands of the system. I do not agree with those who positively interdict the use of coffee and tea. On the contrary, I think they are beneficial in many cases, excepting those who have the excessive use of these articles as a part of their etiology. I fully recognize the fact that the excessive use of either of them aids in prolonging and promoting neurasthenia, but in moderation they are both conservative to the general nutrition.

Electricity is the third indication. I have no doubt about its great value. In the absolute-rest cases, of course, general faradism is necessary, and I direct that in the beginning of the treatment it should be very gently applied and to the extremities only; later, to the whole body, using currents that can just be felt. The skin should be gently stimulated and the various groups of muscles should be made to respond to mild currents. The bed cases should also receive galvanism, first to the head, using a descending current with large electrodes of from 1 to 3 milliamperes; then to the cervical sympathetic, using from 3 to 5 milliamperes, and then to the spine and abdominal sympathetic, with a large negative electrode at the epigastrium and a smaller one over the spine and a current of from 5 to 10 milliamperes. These séances should be given daily.

The partial-rest cases who come to the office should have static electricity. I use it by insulation with the primary current, and by sparks from the spine and abdomen with the secondary current for fifteen or twenty minutes daily. My observation leads me to agree with Morton, Herdman and others that this form of electricity is sedative, tonic, eliminant and a promoter of normal vascular tension.

Hydrotherapy is the fourth indication. Sponge baths are a necessary part of the Weir Mitchell treatment, but in addition they should have the wet pack daily, beginning with a temperature of about 70 F., and gradually lowering to 50 F., prolonged for about one hour. The wet pack promotes tissue metabolism, favors the elimination of fatigue products and promotes sleep.

For the partial-rest cases, the dripping sheet is used, the water being about 70 F., and the friction with the sheet made vigorous, the whole rapidly done. It is an admirable vasomotor tonic. The shower bath, beginning with moderately warm water and gradually cooling it, is of much service in many cases. The hot-air bath, like the wet pack, will promote elimination and often overcome insomnia. Cabinets for this purpose are now readily accessible at a reasonable price.

Massage is the next indication, and is required in all the absolute-rest cases, and there is no necessity and but little advantage in introducing a special masseur. It should be given to the nurse, thereby not only saving unnecessary expense but averting the frequently distracting influences of a stranger in the case. It should be given very gently in the beginning, the movements being limited to the gentle and superficial ones, and little by little the force, vigor and extent of the treatments should be increased. The partial-rest cases sometimes need massage and sometimes do not. If the effect of the massage is sedative, it will do good; if, on the contrary, it is exciting or irritating and may do harm. In some cases, however, the difference between the effects may not be due so much to the patient as to the method of its administration. As the case progresses toward

recovery, physical exercise becomes necessary. The Swedish movements may be added to the massage; light calisthenics may be provided, and such outdoor exercises as golfing, for example. This, I take it, is one of the very best outdoor exercises of to-day for the convalescent cases, and, indeed, for many of the mild cases from the beginning. One of the most persistent cases that I have ever had to treat was largely cured by golfing. The game was played near Chicago in the summer, and when the season was over, she went to the Hot Springs, of Virginia, on account of the golf links that were there, and later to Atlanta, Ga., and she returned home well. The reasonable use of the bicycle is of much use to many, always giving them the caution that its excessive use is dangerous. The trouble is that many of these cases do not seem to know when they have over-exercised. Horseback riding is a very valuable outdoor exercise, much less liable to be abused than bicycling. Change of scene is often of advantage, but much traveling is injurious.

The European trip has been very detrimental to several of my patients. A neurasthenic must be a very good sailor to derive benefit from an ocean voyage, and sight-seeing in Europe is hazardous to their nervous system. The climate selected should be one with a moderate mountain elevation, 1500 to 2000 feet, and one not too dry. Ideal places are to be found in the Allegheny mountains, especially in the mountains of North Carolina—the country round about Asheville, and even better the country north of Asheville, with Linville as its center. This mountain region has the proper elevation, is not too dry, is very free from fogs and has superb mountain roads and trout streams, and inspiring scenery, and far enough removed from the ordinary lines of travel to give the necessary quiet.

The sanitarium, for a short time, is a good place for some patients. They can here receive the rest cures at comparatively little expense, which is an important item, of course, with many; but I do not care to have them remain long in these institutions, because their association with other invalids may develop hypochondriacal symptoms in some patients and hysteria in others.

In the drug treatment of neurasthenia, the first important class is those which promote elimination. Auto-intoxication from constipation and colonic impaction are very frequently present, sometimes overlooked. The aloetic laxatives are those I most frequently use, such as the Lady Webster dinner pill, or the pill of aloin, strychnia, ipecacuanha and belladonna. Occasionally a calomel purge is beneficial. Many of these cases require colonic flushings with the normal saline solution administered in the knee-breast position. Such flushings may be administered in the majority of the constipation cases once or twice a week to the very great advantage of the patient, not only relieving the constipation, but promoting renal elimination, so often deficient. This renal deficiency very often demands diuretics, of which the effervescent potassium citrate is probably the most efficient. All neurasthenics, I think, are greatly benefited by the imbibition of a large amount of water. This not only promotes renal elimination, but adds to the activity of all the emunctories of the body.

The next indication is to relieve the nervousness. For this purpose the bromids are invaluable, and I prefer the sodium bromid. This I usually combine with the fluid extract of adonis vernalis, in from 1 to 5 minim doses. This drug is a vasomotor and cardiac stimulant, and by reason of this action guards against

the depressing effects of the bromid. It also increases renal elimination and is a sedative to the sensory nerves and has no cumulative effect. I very rarely administer the hypnotics on account of the danger of establishing a habit and because of their interference with digestion and tissue metabolism. The bromids during the day, the hot-air bath or the hot pack at night, with some easily digestible food at night will almost invariably secure all the sleep that is necessary. The blood in the great majority of the cases shows a low hemoglobin record and a low count of red corpuscles, and hematinics are necessary. Bland's mass, first introduced to the profession by the great Niemeyer, combined with small doses of the extract of *nux vomica* and arsenious acid, makes the best hematinic combination that I have yet found and is vastly superior to any of the new iron preparations that I have tried. There are very few cases in which it will not rapidly improve the blood record. Cases that are not improved often require alteratives in addition, and the chlorid of gold and sodium, combined with the pulverized resin *guaiaci*, a combination that prevents the decomposition of the gold salt, given before meals, a half or three-quarters of an hour, is the best alterative combination in my experience. Occasionally small doses of the corrosive chlorid of mercury answers next in preference as an alterative. Phosphorus, as the zinc phosphid, or the syrup of the hypophosphites U. S. P., are of service in some cases, and the animal extracts containing phosphorus in a readily assimilable form may be used with advantage. The mineral acids in some of the dyspeptic cases, for temporary use, are of service. Quinin I rarely use unless there be a malarial element present. Strychnia I never give in large doses. I think these two drugs agree in increasing the nervousness and do not benefit, except in exceptional cases, general nutrition.

In conclusion, no matter what special line of treatment may be adopted, it is very important to keep the patient busy in his efforts at cure and a daily schedule of therapeutic work should be furnished to him.

DISCUSSION.

DR. J. H. MCBRIDE, Los Angeles, Cal.—Dr. Brower's remark that neurasthenics do not know when they have reached their limit in work is true of all neurasthenics, or nearly all. Few of them have, or ever had, in health, the natural feeling of tire, and it is almost inevitable that they will overdo.

The mental element of the neurasthenic is an important one. The mere fact that we seclude them is evidence that this is considered important, and yet by seclusion not everything is gained for this side of their life. They should not be allowed to speak of their illness to the nurse, nor to any one. I have made it a rule to allow them to tell me their story once fully and then forbid them to repeat it. This saves the patient from indulging in the morbid luxury of reciting her symptoms, and by compelling a neglect of them they tend to become less prominent. The tendency to hypochondriacal states can be checked in this way.

DR. W. S. WATSON, Fishkill-on-the-Hudson—The importance of treatment of neurasthenia is more than the actual pathology, or whether it is functional or otherwise. The mentality of these cases is a very important feature. Very frequently they seem to live upon the idea that they have some incurable trouble. The electrical treatment and attention to the prevention of auto-intoxication from the intestinal tract are important. Mild doses of mercurials are of advantage, as in nearly all these cases constipation is a factor of no small importance.

DR. RICHARD DEWEY, Wauwatosa, Wis.—I find myself very much in agreement with the ideas expressed by Dr. Brower in his treatment of this common malady, especially the prescribing of a definite period of rest during each day. This is

about the only method of preventing overtaxation in very many of these cases which we all encounter that are incapable of judging at all for themselves how much exertion they should make. They seem to have lost what you might call the fatigue sense. I do not know whether the fatigue sense has a definite center in the brain, but I have been struck by the fact that so many patients are incapable of judging the limits of their own strength.

I agree also in saying that treatment at a sanitarium has its disadvantages in bringing these invalids together, unless great care and precautions are taken to avoid undesirable association, with mutual comparing of notes and discussion of symptoms. This can be done, however, and if it is done, the oversight that can be exercised in a sanitarium is much superior to that which can be secured in any private house, unless you have a rest cure with one or two nurses constantly in attendance. In addition to tub and sheet baths I believe in different forms of sprays and douches, needle baths, etc., and also in the hot shampoo, which in many cases is exceedingly valuable in relieving insomnia.

DR. C. C. HERSMAN, Pittsburg, Pa.—I have decided that rest is one of the best medicines for neurasthenia. Electricity and massage are particularly good with those who are put to bed. For those taking the rest cure I think the hot bath at bedtime is one of the best possible things, because it is such an excellent hypnotic.

Occasionally we find patients whom we diagnose as neurasthenics. Neurasthenia may be the beginning of a paresis; consequently it is necessary for us to study our patients closely. It may be very provoking for us to treat a case of neurasthenia, and then finally have it develop into a typical case of paresis. According to some of our best authors, we find that neurasthenia is the very first symptom, in some cases, and unless we study our patients carefully it is impossible to diagnose the beginning of paresis. In treating of neurasthenia one of the first and most important steps is to gain the confidence of our patient. Otherwise our success is not that desired.

DR. JOHN SMITH—It seems to me that there are many cases that are diagnosed neurasthenia, and treated as such, which are not really that condition. Neurasthenia is not a distinct entity in itself, but it is simply a symptom-complex which we find in many disorders, and I think, not perhaps the neurologist, but the general practitioner, is too apt to simply discover symptoms and call it neurasthenia, without knowing what the underlying conditions are. I remember distinctly a case seen this year, which the physician had treated for some time, and finally sent to me saying he could not find anything outside of the neurasthenic symptoms. Immediately upon examining the urine I found the whole trouble. There was a large quantity of phosphates, and it was only a matter of three weeks before the woman was entirely well. I gave sodium phosphate and sodium benzoate combined with lithia salts.

Cardiac cases are often misunderstood and not treated properly. These are the cases which do so badly when we send them to the seashore.

DR. DOUGLAS GRAHAM, Boston—I think it is generally conceded that electricity can be left off in neurasthenia. As to the massage, it depends of course upon how it is done. In these cases the indications are very definite for the use of massage, as it is almost sure to produce sound sleep if properly given in the evening to neurasthenics who have been wakeful. But if neurasthenic patients who sleep well without massage are massaged in the evening they are sure to be wakeful after it, and yet they do not feel the loss of sleep next day; they have gained something after all.

DR. A. E. STERNE, Indianapolis—It seems to me that it is utterly impossible, in a condition like neurasthenia, to lay down a set rule for any case or even the majority of cases. It is rather a condition, a state of things, than a disease. A great number of cases of unquestionable neurasthenia in their beginnings pass to more profound conditions, both of neurosis and psychosis. From the early beginning the possibility of confounding the condition with the milder grades of paresis

ought to be kept in view. I do not see so much resemblance between melancholia and neurasthenia as between incipient paresis and neurasthenia.

DR. DANIEL R. BROWER, closing—The hot-air baths and the hot pack meet the very important indication of elimination by the skin, and are both sedative to the nervous system. The hot pack should be given on a lounge close to the bed, so that the patient may be placed in the bed without exposure.

As to electricity, one of the mysteries of the times is the fact that we have so many in the profession who fail to realize the curative power of electricity per se, and refer its effects to suggestion alone. Yet these same persons must recognize its great economic power; the electric light, the telephone and the automobile must constantly force this upon them, and then they must recognize its power to decompose water, and destroy tissue. Even regarding it as a purely suggestive agent, I ask those who deery its use, what more convenient agent of this sort can you find? But I beg of them to consider carefully the physiological action of the several forms, in use, before they begin their suggestive treatments.

INTUBATION IN PRIVATE PRACTICE, AND ITS PERFECTION.*

J. TRUMPP, M.D.

Privat Docent for Diseases of Children, University of Munich, Germany.

MUNICH.

You probably know that intubation was formerly received in Europe with great reserve, and also that the ingenious operation of O'Dwyer is practiced at the present time only by our clinicians. The reason why our practitioners have not much inclination for the endolaryngeal method is, that, being so conservative, they in this case apprehend that intubation is an operation immensely difficult to learn, and accompanied by a great number of dangers.

One who is experienced in the matter knows that these apprehensions are exaggerated, that intubation is not at all more dangerous than tracheotomy, and that its sphere ought not to be limited to the hospital. But prejudices of that kind, if they once exist, will not be removed by the reports of single persons, however splendid they might be, but only by extensive, thoroughly authenticated statistics.

In the summer of 1899 I took the trouble to procure data concerning intubation, and I believe with best success. I applied to 89 American and European authors, and that as well to friends as to opponents of intubation. What I learned was:

	Have done, Physicians.	Intubations.	Recoveries before 1894. Per cent.	Under Serum- therapy. Per cent.
In Germany	12	56	30	66
In France	8	437	30	77.11
In Galicia	5	165	30	89.9
In Italy	4	265	22.5	76.9
In Norway	1	1		
In Austria	6	74	43	95
In Russia	1	4		100
In Switzerland . . .	3	18	42.08	100
In Spain	1	322		77.7
In Hungary	2	63	61	60
In Europe	42	1404	39.59	82.58
In U. S. A.	13	4066	31.5	81.5
Total	55	5470	35.54	82.04

These fifty-five reporters think intubation in private practice just as useful as in clinical service; twenty authors had no personal experience in the matter. The rest remained in decided opposition. It may be noticed that the latter ones together disposed of but seventy-three cases, seven of them never proved the effect of

the operation in private practice. The common reason given for opposition was that the dangers of the after-treatment would be greater in practice; that therefore it would be necessary to keep the children under continued medical surveillance and that this very surveillance would be, under ordinary circumstances in practice, a matter of impossibility.

This apprehension was perfectly disproved by the reports of numerous well-experienced authors. There were reported but thirteen accidents: two deaths caused by sudden obstruction of the tube, 10 deaths caused by spontaneous detubage, and one in consequence of suddenly reappearing stenosis after extubation, absente medico.

My report given to the Gesellschaft fuer Kinderheilkunde at the Seventy-first Congress of German Naturalists and Physicians in September, 1899, stated, that: "the practitioner will have the same right—not to say obligation—to use if necessary and carry out intubation, and 2, the endolaryngeal method will give to him as well as the clinician much better results than tracheotomy.

The discussion following my essay proved that the number of opponents to private intubation was apparently reduced, on the face of these facts. Only one speaker emphasized the necessity of medical surveillance on consideration of the great dangers.

If we demand constant medical surveillance, intubation is out of the question. But at all events, we are obliged not to acquiesce with the results already gained, but to aspire to further perfection of the method, and this as long as intubation is accompanied by dangers, even very remote. On this behalf we ought to consider three points:

1. What common duties arise for the physician to undertake an intubation? 2. What method of technical execution is to be mostly recommended? 3. Which model of tubes hitherto existing is preferable to other ones, and is an improvement of the instrumentarium desirable and possible?

1. There is but one opinion about the first point: A physician should not proceed to the operation until he has sufficient previous practice on cadavers and animals. Besides he is to give instruction to the parents about the advantages and disadvantages of the bloody as well as the bloodless method; the alternative should be left to the parents. He should personally supervise the patient as well after introduction as after extraction of the tube as long as a momentary danger could be thought of. He should leave the patient only under the care of a reliable and well-instructed person, or nurse, and should never retire too far or too long from the patient.

2. As to the technique, it is rather indifferent how the tube is inserted if the operator succeeds in placing the tube quickly and without injuring the mucous membrane of the larynx in any way. It is a different question which caliber of tube is to be chosen. If the execution of the operation is a matter of manual ability the choice of the tube for the single case is the matter of clinical experience. Generally speaking one can say: If there are no especial indications to choose a tube of small caliber for the purpose of intermittent intubation, according to Francis Huber, tubes of that size are preferable which can just pass the larynx without being forcibly pushed in. The possibility of delicate introduction is always the condition sine qua non, otherwise the large caliber will be the best safeguard in preventing the most disagreeable drawbacks of intubation, sudden obstruction

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