The Journal of the American Medical Association

Published under the Auspices of the Board of Trustees

VOL. LV, No. 23

CHICAGO, ILLINOIS

DECEMBER 3, 1910

THE ETIOLOGY OF THE PTOSES AND THEIR RELATION TO NEURASTHENIA*

EDWARD REYNOLDS, M.D.
BOSTON

The application of surgical treatment to neurasthenia implies a belief that in the given case the nervous condition is the product of local suffering; and the attainment of the ultimate object of course implies the complete relief of the local suffering as the first step in the process of cure. It therefore seems logical that any discussion of the surgical aspects of neurasthenia should begin by consideration of the results which may be expected from the relief of the local symptomatology.

In this particular subject of the connection between the ptoses and neurasthenia we are met at the outset by the significant fact that after many years of collective experience in the surgical treatment of the ptoses, the discussion about the end results of operation is almost as active and as much a moot question as it was ten years ago.

It is further significant that a review of the literature of this subject during the past ten years shows at once that the controversy on it has been conducted almost without exception along the lines of advocacy of differing technical methods, with an almost entire neglect of any apparent interest in the cause of the lesions.

Now the whole history of surgical progress shows that the long persistence of such a technical question without satisfactory settlement always implies an unsettled pathology or etiology, and that such a technical controversy is usually brought to an end only by some advance in our theoretical knowledge of the cause of the lesions, after which the decision about methods is usually prompt and easy. Thus the selection of the etiology of the ptoses as the subject of the opening paper in this discussion has the double justification that it is at once the line of discussion which promises the most far-reaching results, and that which has been least worked out.

The first and most important point in the etiology of the ptoses is almost axiomatic. It needs no argument to show that they are never primary lesions, but are always secondary to some preexistent mechanical cause, either (a) in the failure of the natural supports of the organ, or (b) in the existence of some abnormal force antagonistic to the efforts of supports of normal strength. These two classes of cause now demand our further consideration.

The ptoses due to weakness of the supporting structures are far the best understood and may be considered first. Ptoses due solely to such weakness are, however, far less common than has been generally understood.

Much that has been written in the past on the subject of ptosis would lead one to believe that a spontaneous relaxation of the supports of some one organ was a common phenomenon. So far as my observations go they tend to show that this is an erroneous view and that the muscular relaxations are always general in their character. Cases which appear to be due to localized relaxation of the supports of a single organ will always prove on closer analysis to be due to an abnormal force which is pushing or pulling that organ out of position and which has overcome the tonicity of its natural supports.

The importance of general, constitutional, muscular relaxation, and loss of fat in the production of generalized ptosis is well understood; but so important a fact as this must not be lightly passed over.

It is, moreover, important to realize here that rapid loss of fat is by all odds the most important element in the causation of the class of cases in which the ptosis is the result purely of passive lengthening of the normal supports. The tissues in these relaxed cases have usually been previously stretched by the deposition of fat within them, and if this is suddenly lost lengthening of the so-called ligaments is inevitable.

In treatment it is most essential to recognize that in this class of cases operative treatment is almost never indicated. We must treat them in accordance with their causation. They will usually obtain relief under treatment directed toward the improvement of general muscular tone and increase of nutrition, and will never obtain satisfactory relief without such general improvement. Operative treatment should be adopted only in the very few instances in which the local symptoms which are the product of the ptosis so far interfere with digestion as to render it difficult to secure proper nutrition without it, and even then it must be remembered that subsequent improvement in nutrition and muscular tonicity is the ultimate object of the operation, and that every therapeutic device at our command should be directed toward its attainment.

The causation and management of ptoses of this first class is, however, generally well understood, and belongs to the domain of accepted surgical principles, but the theorem that there are many cases of ptosis which are primarily due to the existence of forces which are antagonistic to the normal supports of the viscera has only recently attracted attention. I believe that many, if not most, of our failures in the operative treatment of ptosis occur in cases of this second class, and are due to adoption of routine operative measures without previous investigation of the cause of the individual ptosis, and often in defiance of continuing forces which directly dispose to its reproduction. The discussion of these predisposing or directly causative anomalies, and of the surgical measures appropriate to their correction, forms, then, my main theme.

*The opening paper in a discussion on "The End Results of Operations for Ptosis" at a combined meeting of the American Surgical and American Gynecological Associations.

The forces which tend to produce ptosis may be of either local or general origin, and must be considered in detail, those of systemic origin and influence naturally coming first.

GENERAL STATIC FORCES

During the last four or five years my attention has been especially directed to a study of the influence of general static or mechanical conditions on the positions of the abdominal and intrapelvic organs, and much of my time has been given to a prolonged experimental, and, of late, clinical study of this subject in collaboration with Dr. R. W. Lovett. Our experimental studies as bearing on the relation between balance in the erect posture, backache, and the intrapelvic lesions, have been recently published,¹ to which paper I must refer in support of many of the statements which I shall make here. During the past year clinical papers bearing on the same subject as connected with ptosis have been published by

Fig. 1.

Fig. 2.

Fig. 1.—The round-shouldered, hollow-backed position. An outline reproduction of a photograph from life. Not an extreme example.

Fig. 2.—The overfeminine figure. An outline reproduction of a photograph from life. Not an extreme example.

several widely separated observers.² Dr. Lovett and I are now actively engaged in the collection of cases and the tabulation of symptoms and conditions for the purpose of studying these states from a clinical standpoint,

1. Reynolds, Edward, and Lovett, Robert W.: An Experimental Study of Certain Phases of Chronic Backache. *THE JOURNAL A. M. A.*, March 26, 1910, p. 1033.

2. Mosher, E. M.: Habits of Posture a Cause of Deformity and Displacement of the Uterus; *Woman's Med. Jour.*, December, 1909.

Lane, W. A.: Civilization in Relation to the Abdominal Viscera, with Remarks on the Corset, *Lancet*, London, Nov. 13, 1909.

Fish, Cecil E.: A Summary of Several Other Papers—Referred to as the Heather Bigg Controversy, *Lancet*, London, Feb. 5, 1910, p. 397.

Albu, A.: Visceral Ptosis a Constitutional Anomaly, *Berl. klin. Wehnschr.*, xlv, No. 7, p. 285.

Landau, L.: Visceral Ptosis (Zur Lehre von der Splanchnoptose), *Berl. klin. Wehnschr.*, xlv, No. 7, p. 285.

Goldthwait, Joel E.: The Relations of Posture to Human Efficiency and the Influence of Poise on the Support and Function of the Viscera, *Boston Med. and Surg. Jour.*, Dec. 9, 1909.

The following papers are also of interest in this connection: Lange, Fritz: Schule und Korsett, München. Separatabdruck aus der *München. med. Wehnschr.*, Nos. 13 and 14, 1906.

Klapp, Rudolf: Der Erwerb der aufrechten Körperhaltung und seine Bedeutung für die Entstehung orthogenetischer Erkrankungen, München, med. Wehnschr., Nos. 11 und 12, 1910.

Kossmann: Allgemeine Gynecologie, Berlin, Hirschwald, 1903.

Stratz: Die Schönheit des weiblichen Körpers, Stuttgart, Ende, 1899.

Stratz: Der Körper des Kindes, Stuttgart, Ende, 1909.

but, significant as we think that this study is proving in everyday clinical work, the number of cases which we have observed with accuracy is not yet sufficient for the publication of exact results. I must be content here with a merely preliminary, and I hope suggestive, outline statement of a few of the main facts which we have observed.

The variations which we have grown to think important are partly functional and partly congenital, or constitutional variations of skeletal form. First and perhaps most important among them is the attitude known to orthopedic surgeons as the round-shouldered, hollow-backed position illustrated in Figure 1. In this attitude the center of gravity is carried too far forward for easy maintenance of balance, and the capacity of the upper part of the abdomen is decreased by the forward droop of the upper dorsal spine and the descent of the ribs, while the relaxation of the anterior abdominal wall produced by the approximation of the ensiform cartilage to the pubes permits the formation of a pot-belly, with consequent increase in the capacity of the lower abdomen. During the gradual supervention of this abnormal attitude the contents of the upper abdomen necessarily tend to rearrange themselves downward in adjustment to the altering pressures, while the unduly forward position of the lumbar vertebrae, from the anterior face of which the intestines depend, leads to the impaction of their dependent coils against the anterior wall of the abdomen and pelvic cavity.

In the normal attitudes the impact of the intestines is directed against the posterior surface of the uterus and tends to hold it forward, but when, as in this attitude, the intestines necessarily slip into and out of the pelvis along its anterior wall they must sooner or later enter the uterovesical pouch during descent, and so force the uterus and its adnexa backward.³

This attitude is present in a surprisingly large fraction of all ptoses, and is causative toward the ptoses of all the viscera; since I have been led to look for it I have become shocked and ashamed at the blindness which has led to my utter failure to even see so noticeable a phenomenon during all the previous years in which I have been dealing with them. I think that this will be the experience of any operator who has not been previously impressed with the importance of this attitude.

If in such a case an operation for the relief of a ptosis of any one of the viscera is performed without correction of the vicious attitude the persistence of the latter and its consequences is of necessity a continuous force against the permanent endurance of the result. This posture is probably the product of a functional loss of correct balance and is due to factors the relative importance of which we are as yet unable to isolate with certainty.

The second abnormal posture of which we feel able to speak with some certainty is a developmental variation which has been heretofore neglected, but which we have ventured to describe as the overfeminine figure, and which is illustrated in Figures 2 and 3. These women have more or less overextended knees, large hips, hollow backs, and usually somewhat small waists and prominent busts. They are apt to become fat and to have noticeably

3. It has long been recognized that the intra-abdominal pressures correspond closely to hydrostatic laws owing to the nearly equal specific gravity of all the contents; but upon this very basis it is evident that intestinal coils which contain gas will tend to rise, and thereby displace downward those which contain fluid, hence the constant change in position of individual portions of the intestines during peristalsis.

small hands and feet. Their center of gravity is habitually carried too far forward. In them the inclined position of the anterior abdominal wall and the forward inclination of the lumbar spine tend again to impact of the intestines against the anterior pelvic wall, and consequently to displacement of the uterus. We have not, however, seen reason to think that this posture is often associated with the ptosis of the upper abdominal viscera, except when these are due to the dependent drag of a pendulous abdomen, which is, however, certainly an especially common accompaniment of this figure in middle life.⁴

We have worked so long on this subject that we are very anxious to put forth no statements which are not likely to be substantiated by further observations. We do already feel confident that the two variations of posture illustrated are of real importance in their relations to the ptoses, and that their habitual correction will lead to a higher degree of success in the operative treatment of ptosis than is possible without it. We have seen such correction of attitude lead to the relief of symptoms in cases which had previously been operative failures, and we have seen it yield both anatomic and

Fig. 3.

Fig. 3.—Dorsal view of subject shown in Figure 2. Note size of lumbosacral as contrasted with dorsal region. This variety of figure is a developmental exaggeration, and not radically alterable, though its consequences may be relieved.

Fig. 4.

Fig. 4.—Diagrammatic representation of a weight suspended by a sling.

symptomatic success without operation, in cases which we should formerly have considered operative.

Much curious information is also coming to hand on the relation of the lateral inequalities and distortions, such as lateral curvatures produced by short leg or unequal pelvis, *e. g.*, to the disturbances of anteroposterior balance, and to the production of unequal abdominal strains and ptoses; but, although we are frequently obtaining clinical relief in otherwise obstinate intra-pelvic and upper abdominal conditions by associated treatment of these distortions, all this is also too little worked out to be fit for more than the merest mention here.

Both of the attitudes illustrated are largely correctible. Their treatment lies in (a) gymnastic exercises, graduated outdoor exercises, improvement of nutrition and

similar methods; (b) in mechanical aids to balance and posture. The first class of treatment I shall not enter into, because, important and all-essential as it is, its methods are well established and I have nothing new to offer on it, but on the mechanical therapeutics of the trunk our experimental work has thrown some light which we think has been borne out by our clinical experience.

We believe that not only in the functional backaches, but also in the ptoses the essential factor in mechanical treatment is the rectification of the incorrect posture which is so constantly a factor, and apparently a determining factor, in their causation, and which is itself always dependent on an abnormal position of the center of gravity. Our experimental work has shown that this abnormality can be corrected by appliances far more simple and comfortable to the patient than many which are in use, and our clinical experience leads us to believe that equally good results are attained thereby.

The subjects of ptosis are almost invariably neurasthenic, and we believe most emphatically that in their treatment by mechanical appliances the first and prime necessity is that the apparatus used should be comfortable. The surgeon who fixes attention on a local condition and subjects a neurasthenic who is annoyed by a ptosis to prolonged and continuous discomfort from straps and steels does harm rather than good. He too often substitutes a greater discomfort for the lesser one which he is attempting to relieve. The great advantage which the therapeutic corset has over the complicated harnesses so often employed is that it can be made, and should always be made, a distinct comfort to the patient from the moment it is applied. It may be said of the corset, as it has long been said of the pessary, that if it is not comfortable it is not efficient, and with almost equal truth, that if it is not comfortable it is doing harm.

Extreme cases may demand extreme treatment, but we believe that a corset properly contrived to support the lower abdomen is for most cases the simplest, least harmful and most generally effective appliance, especially if it is backed up by proper shoes.

It is certainly true in my experience with nephroptosis that corsets, belts and pads adapted to make direct pressure on or below the prolapsed kidney have proved far less effective than those which are fitted to restore the normal direction to the general intra-abdominal pressure, both by properly directed compression and by restoration of balance.

Lack of space forbids me from entering fully into mechanical therapeutics here, but a few words descriptive of the mechanism by which the therapeutic corset chiefly corrects attitude may be of interest. As has been said, the leading general characteristic of all these attitudes is the carriage of the center of gravity of the body too far forward, with backward displacement of the buttocks and forward displacement of the upper part of the trunk. We have been able to demonstrate experimentally that the use of high-heeled shoes tends to sway the body as a whole backward from the ankle; also that certain forms of corsets, as well as other forms of apparatus, to which we have only referred incidentally in our publications, tend to bring the buttocks forward and the shoulders back, and this latter movement is effected by a mechanical principle which is also perhaps of sufficient interest to be mentioned here.

It is a general rule in mechanics that the action of opposing forces at rest is always opposite and equal, so that the downward pressure on the lower end of a sling

⁴ It is important to distinguish between the rotundity due to increased fat with increased abdominal pressure, and the protuberance due to true relaxation of the abdominal walls with decreased or even negative intra-abdominal pressure.

(Fig. 4, A) in which a weight is suspended is of necessity exactly equal to the traction on the upper end of the sling (Fig. 4, B); thus, if the weight of the pendulous abdomen is suspended by a belt or therapeutic corset which obtains its bearing from the posterior surface of the sacrum, that weight may be regarded as having been transferred from the anterior to the posterior side of the lower portion of the trunk. It is, in fact, mechanically equivalent to a weight placed on the sacral region; but if a weight is so placed on any portion of the posterior surface of the body it carries the center of gravity of the whole mass so far backward that the model must either fall backward or readjust the center of gravity;⁵ and if the weight is placed on the sacrum the necessary change is, in fact, effected by carrying the hips forward.

If, however, the hips were carried forward without alteration of the position of the trunk the center of gravity would at once be carried so far to the front that the subject would fall on her face; hence the forward motion of the hips superinduced by the weight on the sacrum is of necessity complemented by a backward motion of the shoulders. In practice as well as in theory the first among the many effects of the therapeutic corset is a readjustment of posture by moving the hips forward and the shoulders back, *i. e.*, the assumption of an erect posture. It is to be noted, too, that this straightening of the dorsal spine and squaring of the shoulders with consequent elevation of the ribs and expansion of the chest is effected by the patient's own muscles under the influence of an instinctive effort toward the maintenance of balance. It is an active and natural return to a desirable attitude under the influence of the change in the abdominal pressures and in the position of the center of gravity. As such it is therapeutically far more desirable than the enforced and passive assumption of the same attitude in opposition to the natural instincts which is produced by shoulder-straps and rigid back-braces.

One word of caution must be inserted. We have learned by experience, and considerably to our surprise, that the change of dorsal attitude so induced may easily be made so extreme as to cause new dorsal and cervical aches if it is pushed too rapidly. The first corset should not be so cut or adjusted as to produce all the effect that is ultimately to be desired. A moderate change of attitude is all that is at first permissible, and adjustment to this new position should be effected by graduated exercises before more is attempted.

Another great advantage of the therapeutic corset as a mechanical corrective is that, if properly made, it restricts the motion of the body above the waist exceedingly little and permits free play to the dorsal and scapular muscles throughout the patient's day.

In conclusion of this section I may say that no one can appreciate more fully than Dr. Lovett and I the elementary character of all that we are as yet ready to say on this subject, but we believe that our experiments and observations have already gone far enough to warrant our belief in the importance of posture in this as well as in some other relations; moreover, this belief is supported by the publications already alluded to. In practice, too, we are obtaining so much satisfaction that we feel confident of the importance of this subject. Many ptoses are dependent, as is yet to be said, on conditions

which can be remedied only by operation; many chronic backaches also are dependent on anatomic lesions which can be treated radically only by operation, but the great majority of both affections have a general static element in their etiology and demand its recognition in their treatment. In especial we may say that there are but few chronic backaches which cannot be remedied if both elements in their etiology are taken into consideration.

The abdominal surgeon must learn that in a large proportion of cases of the nature under consideration he must utilize the aid of mechanical and gymnastic therapy if he wishes complete results. The orthopedic surgeon also must learn that ptoses and backaches are by no means universally of purely static origin, and that whenever a case of this nature fails to react promptly to mechanical and gymnastic treatment an examination of the abdominal and intrapelvic organs should precede all further orthopedic effort. In many of these cases the two specialists must work together if really satisfactory results are to be attained.

LOCAL ABNORMALITIES

The static abnormalities are general in their action and may effect the relations of any or all of the abdominal viscera. The local causes of ptosis, now to be spoken of, are, on the contrary, individual to each organ. They are probably of equal importance throughout the abdomen, but in treating of them I propose to restrict myself here to the local causes of the intrapelvic ptoses only, since it is in that portion of the abdomen that these local causes are most easily worked out, and on the local causes of the ptoses of the upper abdomen I am not yet ready to speak.

The local causes of the pelvic ptoses are to be found in the inflammatory lesions, trauma, and some developmental anomalies, each of which with its treatment must now be taken up by itself.⁶

In this connection it is well to remember that the retrodisplacements are in themselves ptoses and are, moreover, no more than the first stage in complete ptosis of the genital organs. For the purposes of this paper, then, all the displacements of the uterus and its adnexa may be fairly considered as a single group of essentially similar lesions which can be dealt with here as a whole; and for economy of space they will be so treated.

In the pelvic ptoses due to obstetric trauma and inflammatory diseases the static predispositions are again of some importance, and at the risk of repetition I must again briefly refer to them here.

The operative treatment of the ptoses due to obstetric trauma is mainly concerned with the repair of lacerations, but it is well recognized that extensive obstetric trauma is sometimes followed by curiously little loss of support, while in other cases extremely slight solutions of continuity are followed by displacement, descensus, or perhaps by complete prolapse, and the explanations offered for these differences in result have not been heretofore wholly satisfactory. I believe that a valid explanation of them is now to be found in the existence, or non-existence, of the predisposing causes in the individual anatomy. I believe, too, that the search for these causes is all important in the treatment of these cases also, and that their correction will often contribute most satisfactorily to the avoidance of the failures which still too often follow on an operation for prolapse.

5. For suggestions leading to the elaboration of this and many other mechanical points we gladly acknowledge our indebtedness to personal communications from Dr. Ansel G. Cook of Hartford whose instinctive appreciation of the problems of balance is well known to the orthopedic portion of the profession.

6. Consideration of the ptoses due to the weight of new growths will be omitted here.

Perhaps the most prominent of all the local causes of the pelvic ptoses are the infections of the Fallopian tubes. It is universally recognized that adherent tubes drag the uterus backward and that the separation of the adhesions is the first step in the operation in these cases; the methods which should be adopted for the remainder of the operation constitute the only point in question. I believe that here we must rest on the original cause. When the history and physical examination warrant the belief that the occurrence of an infection in previously wholly normal organs was the only source of a displacement, the separation of the adhesions is a complete removal of the cause, and the operation which best holds the tubes away from the posterior peritoneum is the operation of choice. On the other hand, it must not be forgotten that the displaced genital organs are especially prone to inflammation and adhesions from slight causes, and that ptosis of the uterus and its adnexa, originally simple and the product of other local or general causes, may in time become complicated by inflammatory conditions which overshadow the original causes. In these cases the method of treatment adopted after the separation of adhesions should depend on the original cause of the lesion, whatever that may have been, precisely as in uncomplicated retroversions.

The developmental anomalies are of the utmost importance, since there can be little doubt that the whole subject of ptosis is closely related to that of general underdevelopment and should always be studied in that light. In the absence of the evidence of general underdevelopment the local anomalies are, however, ordinarily in themselves a sufficient explanation for the ptoses, and indicate at most only some modification of the ordinary operative treatment.

Among those developmental anomalies which are efficient local causes of uterine displacement, or ptosis, limited space prevents my mentioning more than the three which I have most frequently seen.

Normally the vagina and rectum separate somewhat below the level of the posterior cul-de-sac; exceptionally they are attached to each other throughout the whole length of the vagina, and even up to its actual attachment on the posterior surface of the uterus. In this anatomic condition the effort of emptying an overloaded rectum necessarily forces the uterus backward and downward, and if this condition is allowed to persist it will almost certainly militate against a good result from operation. It is not an extremely common anomaly, but I have seen it effective in a number of instances, and the possibility of its existence is well worth the momentary inspection which will detect it. If it is found, the separation of the rectum from the upper part of the vagina is easily effected, and should then be rendered permanent by a transverse suture of the incision. This small addition to the operation will in such cases make the whole difference between success and failure; without it the contest between the new mechanical conditions which were brought into being by the operation and the still existent abnormal rectal attachment, which drags the organ backward and downward, is likely to result either in the loss of the anatomic results of operation or, if they persist, in the production of a new pain.⁷

A not infrequent and a very important anomaly which has not attracted so much attention as it should

is the persistence into adult life of one of the so-called ileolumbar ligaments which are normally present in the fetus. These structures represent ontogenetically the primitive support of the genital organs, but have disappeared normally in the adult human female. It will be remembered that during fetal life the ovary, like the testicle, descends from its original position in the forward part of the celom to its final position in the pelvis, while at the same time the kidney moves in the reverse direction. These movements are bilateral, but on the right side of the abdomen they are complicated by the descent of the cecum and ileum. They are accompanied and probably facilitated by the development on each side of longitudinal folds of peritoneum containing freely developed smooth muscular fiber which have been described by numerous anatomists⁸ under several names (*e. g.*, ileolumbar, lumbo-ovarian, ileo-ovarian, appendiculo-ovarian ligaments).

During a portion of fetal life these ligaments are strong and well-marked longitudinal structures which draw the fundus upward and backward in opposition to the as yet little-developed round ligaments. With the progress of development they relax and permit the formation of the transverse broad ligaments. Eventually the ligament of the left side entirely disappears, while a portion of its fellow on the right side persists permanently. This structure is well known as a fold of peritoneum which originates sometimes in the mesentery of the appendix, sometimes in the mesentery of the ileum, sometimes in both, and from there runs downward to be lost in the general peritoneum at the brim of the pelvis. It has been recommended as a guide to the appendix.

I know of no instance in which the ileolumbar ligament of the left side has been found persistent, but I have seen numerous instances of its total or partial persistence on the right side. It then forms a band, which with its continuation, the utero-ovarian ligament, connects the right cornu with the peritoneum in the neighborhood of the ileocecal valve. When fully persistent it holds the uterus in forced retroversion; this condition is, however, probably rare, I have seen but one instance of it, but its partial persistence is not uncommon. It is then easily overlooked unless the uterus is drawn strongly forward with the intent of searching for it, when it springs into prominence. If it is not detected this effect will of course be produced as soon as the uterus is drawn into anteversion by any operative procedure. It then forms a retro-uterine guy on which the weight of the intestinal coils must necessarily rest when the patient reassumes the erect posture, and persists as a strong element against the success of the opera-

8. Graves, William P.: Incomplete Descent of the Ovary and Persistence of the Lumbo-ovarian Ligament as a Cause of Retro-Deviation of the Uterus, *Bull. of the Free Hospital for Women*, March, 1903, 1, No. 1.

Durand: Le ligament ileo-ovarien (Appendiculo-ovarien de Clado); Contribution à l'étude du ligament large.

Gebhard: Pathologische Anatomie der weiblichen Sexualorgane, Leipzig, Hitzel, 1899.

Hasse, C.: Beobachtungen über die Lage der Eingeweide im weiblichen Beckeneingange, *Arch. f. Gynäk.*, 1875, viii, 402.

Küstner, O.: Lage und Bewegungs-Anomalien des Uterus, In Velt's Handbuch der Gynäkologie, Wiesbaden, 1897, i, 63.

Poirier: Lymphatiques des organes génitaux de la femme, 1889.

Rouget, C.: Recherches sur les organes érectiles de la femme et sur l'appareil musculaire tubo-ovarien, dans leurs rapports avec l'ovulation et la menstruation, *Jour. de physiol.*, Paris, 1858, ix, 320.

Schultze, B. S.: Zur Kenntniss von der Lage der Eingeweide im weiblichen Becken, *Arch. f. Gynäk.*, 1876, x, 262.

Vullin, Paul: Situation et prolapsus des ovaires, Paris, 1887.

7. In this connection note also the recent development of intra-abdominal operations directed against the tissues immediately behind the cervix.

tion. My experience, which now covers thirteen years of observation, leads me to believe it a not uncommon anomaly.

I have also seen some reason to suspect that this anomaly may sometimes be responsible for a ptosis of the kidney, a view which its embryologic significance would tend to support. I have once seen it responsible for a displacement of a portion of the ileum.

If this ligament is found it should be divided and the cut edges of the peritoneum whipped over before any form of suspensory operation is done, care being taken that the division is sufficiently extensive to lead to full relaxation.

Perhaps the most important of all the developmental anomalies is, however, the condition known as ante flexion of the cervix. This lesion, though familiar to every gynecologist, has, I think, not been generally recognized as a cause of retroversion. It is, in point of fact, a developmental failure; a partial persistence of an infantile condition, in which the cervix is held forward by a congenitally short anterior vaginal wall and similarly shortened uterovesical ligaments; but since the cervix is much the most firmly suspended portion of the uterus, a forward fixation of the cervix necessarily tends to a backward position of the body. That the forward position of the fundus which is originally characteristic of ante flexion of the cervix is not, as is usually believed, necessarily due to an organic curvature of the body, is shown by the fact that forward fixation of the cervix is present in an extremely large proportion of all straight retroversions of the uterus, and that in each of these the reposition of the body by operation only restores the overbent condition from which the organ had escaped by straightening out into retroversion. Dysmenorrhea which has been recovered from is often reestablished by such operations.

Lack of space forbids my entering at length into this subject, but my own experience in observation of it has been so conclusive, and already so extensive, that I am confident that any observer who will trouble himself to watch for this condition in his cases of retroversion will become convinced of its importance. Indeed, one has only to watch the effect of temporary anesthesia on uncomplicated cases of ante flexion of the cervix to find that under the muscular relaxation so induced the fundus commonly falls backward, to be drawn forward again when muscular tone returns. It can then hardly fail to be a constant influence towards retroversion.

The condition is easily remedied by a transverse division of all the tissues in front of the cervix. The vaginal wall should be divided transversely with the knife just anterior to its junction with the cervix, the bladder should then be separated from the supravaginal cervix by blunt dissection with the finger, and the tissues on either side of the cervix and anterior to the broad ligaments should be somewhat widely separated by the same blunt dissection. The only bleeding will be from the cut edges of the vaginal wall and will be entirely controlled by the suture, which should be inserted transversely and for elongation of the vaginal wall. The deeper tissues need no attention. The adoption of this simple procedure as a preliminary to the abdominal treatment of retroversion in these cases has much improved my own end results, and I feel sure that this point is an important one.

I believe that the developmental anomalies of the viscera of the upper abdomen form a point well worthy of further study in connection with their ptoses.

In conclusion of my treatment of this first question, *i. e.*, of the local end results of operation, I must permit myself to say that I cannot help feeling, more and more clearly, with each succeeding year of the five which I have now devoted to the pursuit of this subject, that the careful study of the etiology of each case of ptosis promises in the end to clear up much of the confusion which has so long surrounded and still shrouds this question, and to lead to the intelligent adaptation of the form of operation chosen to the needs of the individual case; also that I am becoming persuaded that the detection and correction of auxiliary or predisposing causes before operation is undertaken, and their reasonably continued treatment after operation has been performed is even by itself of far more importance to both anatomic and therapeutic success than the exact form of operation which is selected.

The answer to the second question proposed to us—the effect of operations for ptosis in neurasthenics on the neurasthenia itself—seems to me to depend, first, on a definition, and, second, on another etiologic point.

The term “neurasthenia” is, like the term “rheumatism,” one which covers so many different states as to have no satisfactory meaning in modern medicine. The mere definition of this term has in fact provoked in the last ten years a large neurologic literature of its own. It is therefore all important that any discussion on this subject should start with a definition of what is to be talked about.

I take it that as surgeons we are not concerned with the subtleties of neurologic classifications and that in using this loose and popular term we understand merely a state of low resistance to the depressing influences of the environment, irrespective of the cause to which this low resistance may be due. If this is what we mean, it follows as a logical necessity that our operations will improve the neurasthenic state in those cases in which the lessened resistance is due to the lesions on which we operate, and in no others. An attempt to relieve neurasthenia of psychologic origin by surgical operations on local lesions will invariably make the abnormal psychologic state worse. Self-evident as this may appear, it is a general principle which is too often forgotten.

From a practical standpoint it has seemed to me that the crucial test of whether the state of lessened resistance which we call neurasthenia is, or is not, dependent on the effects of local lesions lies in a careful study of the chronologic relations between the local and general symptomatology. If the neurasthenia has been pronounced and prolonged before local suffering appeared the patients will seldom be benefited by operation. If, however, prolonged suffering of local origin has preceded the advent of the neurasthenia, complete relief of the local suffering will usually result in general systemic improvement, and in increased power of resistance to the general wear and tear of life.

Two general principles must, however, be always borne in mind: First, even in these cases the only way in which the operation can benefit the neurasthenia itself is by resulting in a permanent relief of local suffering; for this reason no operation should be undertaken until the surgeon has convinced himself by close study that the local suffering is directly dependent on the local lesion and will be relieved by its repair. Second, in neurasthenics an operation which does not definitely and permanently relieve the local symptoms invariably increases the neurasthenia.

It must be remembered also that in all those cases with which we as surgeons can properly deal, the state

of lessened resistance to the wear and tear of life which we call neurasthenia is always the product of an excess of physiologic expenditure over, and above physiologic income; and that even if this excess of expenditure be in part the result of local suffering, we can expect no satisfactory result from operation in patients who are so situated that their expenditure under the ordinary fatigue of life is, and must remain, in excess of their powers. In such cases the results of operation will be unsatisfactory unless the conditions of the patient's life can be so far altered that the vital expenditure after operation will be less than the patient's intrinsic vital income. I believe, then, that the attainment of satisfactory end effects on the neurasthenic state itself depends, first and primarily, on the selection for operation of cases in which the neurasthenia is the result of local suffering due to local lesions, and the exclusion from operation of all other cases; secondly, on the termination of local suffering by successful end results in the operation itself, and, thirdly, on successful regulation of the patient's life after operation, either by the surgeon himself or by an intelligent medical attendant.

The too frequent failures which we have all seen are usually the result of operating in the wrong cases; and, on the other hand, much injustice is undoubtedly done to many individuals who are subjected to what is generally regarded as the reproach of nervous invalidism when in reality their suffering is real, and derived from some remediable localized cause. Were we sufficiently wise in our selection of cases there would be few more satisfactory end results than those which we should attain in the treatment of the neurasthenic state itself by operation.

321 Dartmouth Street.

RELATION OF RECRUITING TO PREVENTIVE MEDICINE *

W. H. RENNIE, M.D.
WASHINGTON, D. C.

That old and trite saying that "the efficiency of an army or navy depends on the soundness of the health of the individuals composing it," was equally true in the past as in the present, when the study of preventive medicine is so much to the fore. To-day there is a deeper appreciation of the reality of this fact, and consequently the work of recruiting has assumed the serious rôle to which it is entitled.

"Since the most important factor in the efficiency of an army is its health, it follows that everything which may influence this in any way for the better or worse should be looked after with the utmost care. The men who compose an army are drawn from civil life, in which each individual has, to a greater or lesser extent, independent control of his time, choice of occupation, selection of food and dwelling-place, and general sanitary care. After enlistment, soldiers lose most of this independence; they are housed, clothed, fed and exercised under regulations which it is beyond their power to amend; they are moved from one point to another, differing perhaps very widely in climatic and other conditions, under orders which they may not presume to question; their hours for sleep, meals, work, and recreation are fixed for them without consultation with them,

and without regard to individual or communal preference."¹ This applies with equal force to men-o-war's men.

The importance of the work of recruiting is more particularly emphasized when one considers the large percentage of rejections, 67 per cent., the few accepted, 33 per cent.; and of the latter, despite rules and regulations and utmost care, some must be discharged on the first re-examination on the receiving ship, the number surveyed each year not in the line of duty or existed prior to enlistment, besides the cost in time, labor and keep, loss to the government, and the hard fact that the physically undesirable recruit is filling the place otherwise occupied by a good man.

The life at sea is at times arduous, calling for stamina and unexpected demands at any hour of the day or night, for the man enlists for general service, for war as well as for peace, never forgetting that the question of the line of duty and pension may arise in each case.

The applicant, as he presents himself at the recruiting office, is not of a distinct and separate class; on the contrary, he represents all types and comes from all walks of life, from the highest to the lowest. He is the graduate in medicine, law, theology, the teacher, the pharmacist, the student, the actor, the artisan, the clerk, the laborer, the schoolboy, the gentleman hobo and the tramp; from nearly every field of human activity men seek entrance into the enlisted force of the United States Navy.

Among such a collection of potential men-o-war's men are met all degrees of physical defects as well as physical perfection (so far as this is possible); all degrees of cleanliness of person and clothes; men with and without means of livelihood; the stupid and the mentally weak, ascending to the highly trained and educated; men of travel, men from home and the poor devils looking for a home, men of the city and men off the farm; those of unsavory reputation, the lovelorn and other runaways—in fact, there are no exceptions, for all classes of men, for all reasons, wend their way to the examining room of the recruiting office.

The vagrants, the great unwashed, are undesirable as a class; they bathe at long and irregular intervals; their habits morally, mentally and physically, are scarcely commendable, and they have learned to dislike work. Sometimes I think they should be excluded without exception; the price paid for the few good men is too exorbitant for the undesirables sure to gain entrance. Just as the chain is no stronger than its weakest link, so the man when needed will break at his weak point. The ounce of prevention is also valuable in the work of recruiting.

In all wars the number of deaths from disease has been far in excess of that of casualties, and more discharges are due to sickness than to injuries.

"The examination is very thorough, and includes the mental condition, the principal organs of the body, the general formation, the chest capacity, the condition of the teeth, skin, joints and feet, and the presence or absence of hernia, varicocele and other disqualifications."² The recruit must be well-built all around, superior to the average in muscular development, or, if in youth, have potential strength. He must be sound, ready for all kinds of work and sudden strain.

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-First Annual Session held at St. Louis, June, 1910.

1. Harrington: Practical Hygiene, p. 565.
2. Practical Hygiene, p. 572.